


STATE LIBRARY OF PENNSYLVANIA



3 0144 00049026 8

S-LR
Q

608
In85
v.17



Digitized by the Internet Archive
in 2017 with funding from

This project is made possible by a grant from the Institute of Museum and Library Services as administered by the Pennsylvania Department of Education through the Office of Commonwealth Libraries

A JOURNAL
OF MANUFACTURING
INDUSTRY

THE Inventive Age AND
PATENT INDEX.

AND SCIENTIFIC PROGRESS.

SEVENTEENTH YEAR.
No. 1.

WASHINGTON, D. C.---JANUARY, 1905.

SINGLE COPIES 10 CENTS.
ONE DOLLAR A YEAR.

NEW DEVICES IN WARFARE.

WE present herewith a view of the harbor of Port Arthur, upon which the eyes of the world have been focussed for months, and the battles around which bid fair to rank among the most desperate and deadly in history. The photograph was taken just before the beginning of the memorable siege which has recently terminated, and shows in the centre one of the ill-fated Russian warships, soon destined to be destroyed by Japanese torpedoes. On the hills in the background are the Russian fortifications which have been the scene of such sanguinary struggles. On the left is the entrance to the harbor, now

counter-tunnels have been employed as never before in actual conflicts; and the world has been offered a picture of warfare up-to-date, in an army using searchlights at night to dazzle the enemy and to ensure the accuracy of the aim of its own guns; and in the general employment of the telephone to communicate with headquarters and with outlying regiments. Balloons, too, have been utilized effectively for the first time in battle. They have in the past, it is true, served the purpose of conveying messages during previous struggles, notably during the siege of Paris; but in this case a number of balloons, cigar-



HARBOR OF PORT ARTHUR AS VIEWED FROM THE TOWN.

blocked by sunken vessels; and in the immediate foreground is shown, strikingly exemplifying the juncture of the East and the West, a modern motor launch, contrasted with the Chinese boats beyond it.

The Russo-Japanese war has given opportunity for the trial of many new devices and implements of battle. The value of torpedo boats, up to this time a question of theory, has been proven to the satisfaction of everyone except the so-called naval experts, who still hold tenaciously to preconceived opinions. A new explosive, shimose, has demonstrated its deadly qualities; tunnels and

shaped like the air ship which Santos-Dumont has made famous, have been utilized by the Japanese for examining the enemy's defenses. Anchored by means of ropes at a certain distance above the earth, with which they are in further communication through telephones, they have been occupied by a corps of officers, who have daily surveyed through telescopes the position of the Russian troops, and have given orders as to the aiming of the artillery. An elaborate system of maps divided into numbered sections had been distributed, and when the signallers from their lofty view-point would advise the dismount-

ing of a gun or the disabling of a ship within a certain section, those on the ground below would be able to follow their directions with remarkable accuracy. Strenuous efforts were made by the Russians to destroy these balloons, but owing to difficulties of range, etc., they succeeded in putting out of operation only one.

It may not be generally known that all the great nations have equipped their armies with balloons, and that Uncle Sam is about to convert Omaha Barracks, Nebraska, into a signal corps post, and to install a war balloon train there. Already, our army has three of these air-ships, two pear-shaped and the third cylindrical, of what is known as the "dragon" type, which has been adopted by the German army.

In practical operation, the balloon is transported to any desired location in the field, unpacked, spread upon the ground and filled. The envelop having been inflated, what is known as the maneuvering bar is attached to the end of the cable which is wound upon the reel wagon, and the necessary length paid out. The height of the balloon above will be regulated by the length of rope.

The observer, while holding in one hand his powerful field glass and scanning the expanse below, will hold in the other an instrument combining in one mechanism the functions of a receiver and transmitter, both telephonic and telegraphic. A reel controlled from the ground will unwind six thousand feet of insulated wire, connecting this instrument with its exact duplicate on the earth. In an emergency forbidding reliance upon the simple telephonic powers of this device, it will be utilized for telegraphy. The observer will then rest his finger upon an electric button on the handle of the instrument and telegraph the Morse dot and dash code. Each press button will dispatch, down the connecting wire, a peculiar buzzing whistle, audible to the receiver below. It is believed that before long, however, wireless telegraphy can be adapted to this purpose, thus obviating the necessity of this apparatus.

The army will probably cease the use of the pear-shaped types of war balloons, as they have many disadvantages. In a high wind, for instance, it is almost impossible to elevate them above the danger level, and their envelopes loosen so as they mount into high altitudes that their sides often cave in and offer to the wind a sail surface. It is also difficult to haul these balloons, when inflated, from place to place, whereas the cylindrical type presents much less resistance to the wind, when strapped to the platform of the wagon. The latter, by the way, is auto-propelled.

Among the many uses to which these air-ships can be put is the transporting of soldiers across rivers not spanned by bridges. This has been successfully tested in France, the balloons being held above midstream while the men swung themselves across on many ropes suspended from the car. The dropping of explosives from balloons is another terrible possibility in wars of the future.

IRRIGATION PROBLEMS AND PROGRESS.

THE recent irrigation congress has again attracted attention to this question, so vital to large sections of our country. Millions of acres in the west, now sandy and parched with the sun, where only thorny cactus and mesquite grow, can be converted, by

a few months later, scarcely a drop of water trickles along its dusty bed. Where this water is stored, in the neighborhood of El Paso, the desert becomes verdant. The same conditions exist around Phoenix. In Lower California, too, soil which for-



FIG. 1.—BUCK SCRAPER.

the introduction of water, into wonderfully fertile fields. An abundance of water is provided in the melting snow which pours from the mountains, within reach of practically every part of the regions so neglected by nature. The whole problem is how to conserve this water, and how to prevent it from

merly produced nothing is now yielding fortunes in the cultivation of oranges and other fruits. In the town of Redlands are two hillsides, one unwatered and a desert, the other irrigated and blossoming like the rose. In Wyoming, where mountain snows are made to fill an enormous artificial

complete control, and weeks of unremitting sunshine cause the harvest to ripen steadily and abundantly. These are only instances of what miracles irrigation can accomplish. The government has made large appropriations for developing arid regions, and titanic works are now under way for the storage of water. Ten million acres of our country are now under irrigation—not only in the west but in some of the southern and eastern states—and canals built, up to this year, covered an added area of at least 5,000,000 acres. The government has already spent upwards of a hundred million dollars on this work, and intends to spend much more. The huge dam at Tonto Basin, in Arizona, for instance, will cost \$3,000,000, one third of which has already been expended. When completed, it will be the largest water storage enterprise in the world, surpassing in size even the famous Nile dam at Assouan. The latter, it is true, will cover a larger area, but it is only a few feet deep, while the Tonto will be, in places, over 200 feet in depth. The reservoir will be 30 miles long, extending 18 miles up Salt River and 12 miles up the Tonto, and four miles wide. The site for the dam is 600 yards below the mouth of the outlet canyon, at the junction of these two rivers. The dam will be built with a crown pointed up stream. It will be 270 feet high, and 225 feet through at the base, tapering to a 16 foot roadway at the top, over which will pass a United States mail highway. The canyon, at this spot, is only 200 feet wide at the base of the dam, and 400 feet where its top will reach.

The dam will be built of rocks

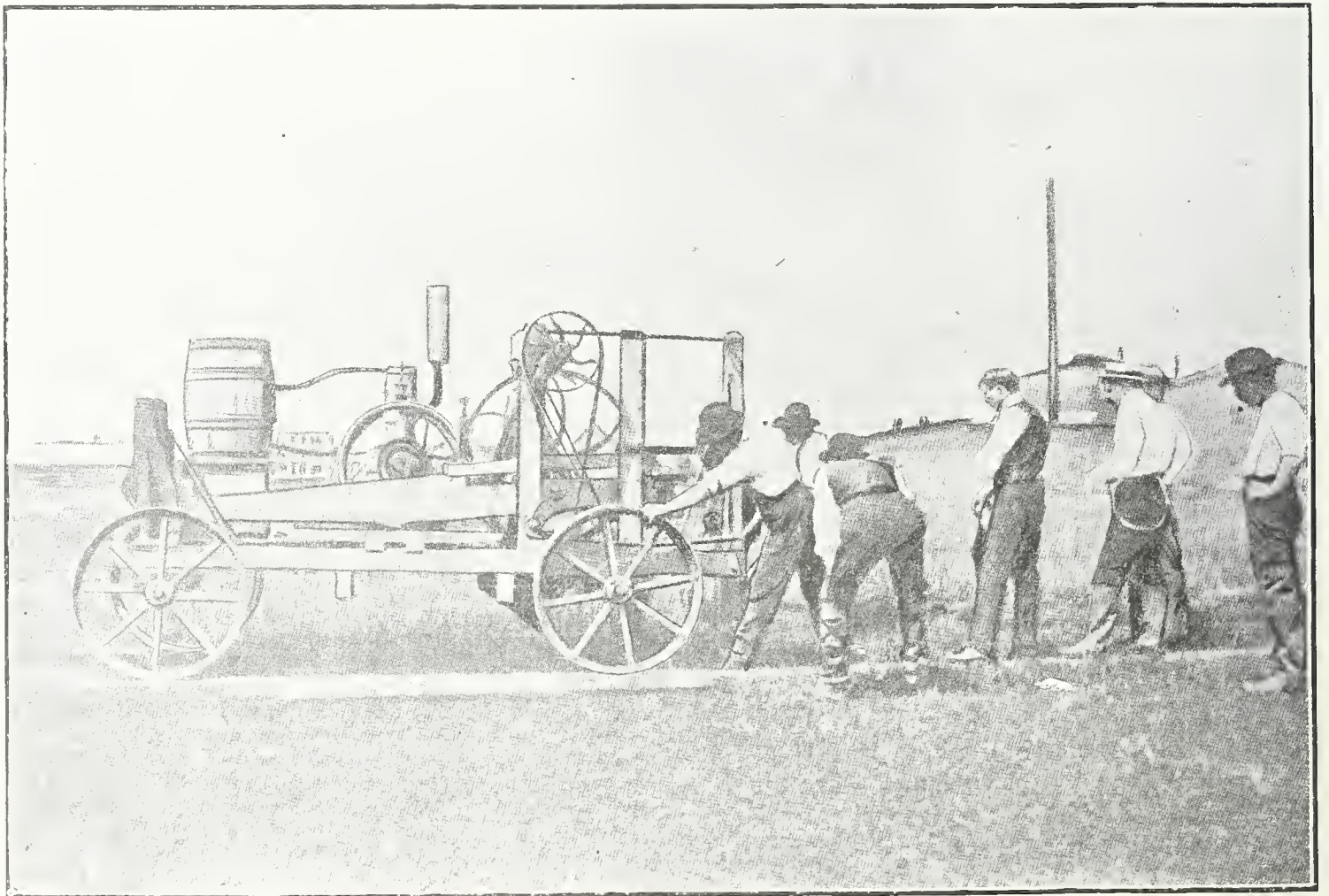


FIG. 2.—DITCHING BY MACHINERY.

going to waste during seasons of flood. The Rio Grande river is a typical stream of the arid sections. In the spring, it is a raging torrent;

lake, the cultivation of wheat has been undertaken on a huge scale, and under perfect conditions. The grain is planted, the irrigation is under

weighing up to 12 tons, laid in Portland cement mortar, and water tight. The location is peculiarly favorable for the construction contemplated, as

he bed rock tips up stream, making sliding impossible, and all the material for making first class Portland cement can be found within a few miles of the site. The line of work extends for eighty miles, and this section of the country, but a few months ago primeval wilderness, is now a busy hive of industry, teeming with saw mills and laborers preparing the cement mill, the electric plant, the power canals, cable car lines, water pipes, derricks, a stone quarry, and a hundred miles of difficult mountain roads. The dam, when completed, will be on so massive a scale that it will become a veritable part of the towering mountains that surround it, and will endure any pressure the elements can bring to bear against it.

Then, the best methods of utilizing small sources of water are being studied. Scattered throughout the regions between the Mississippi and the Rockies are large areas where crops are raised, but where the productivity would be greatly increased by the use of methods that would conserve moisture.

Irrigation is profitable, not only to the arid West, but even to the humid portions of the United States. The adoption of this system in the rice districts of Louisiana and Texas produced a crop the value of which was estimated last year at \$14,000,000. In other words, the value of the single crop was greater than the total value of the land before irrigation was established. The success of cranberry

tributed through metal pipes and canvas hose. This has the advantage of obviating the work of cutting the ditches; it also prevents the loss of water which takes place from these ditches, and permits the use of machinery for cultivation.

The structures used in the measurement and distribution of water have improved as greatly as the methods employed in applying it. The use of wooden flumes, head gates and measuring boxes is being done away with, and metal, stone and concrete structures are being substituted. There has been a remarkable advance in the past five years in the manufacture of concrete strengthened by metal, not only for buildings, but for irrigation works. It bids fair to displace wood in flumes, pipes, culverts and the linings of canals, in order to prevent loss from seepage.

Another line of improvement has been in the employment of sprinklers for market gardens. The accompanying illustration (Fig. 3) shows one of the latest of these devices. The water supply, in this case, comes from driven wells, is pumped into a tank, and distributed through pipes attached to movable sprinklers. This is a long pipe, supplied at intervals with spraying nozzles and supported by means of a wheel framework. Water is introduced into this by means of a rubber hose. The ground to be watered is supplied from a series of iron pipes, and when one section has been irrigated the rubber hose is uncoupled and attached to the next tap on the supply pipe.

The proper use and control of water promises not only to transform the deserts of our country into fertile gardens, but to develop many industries in regions that have heretofore, although cultivated, been considered of little value.

The English Patent Act of 1902.

We make no excuse for adverting to the subject of the search which on and after the first day of 1905 will be made by the English Patent Office in connection with the filing of complete specifications, whether this takes place in the first instance, or after a provisional one.

The search will be confined to those complete specifications which have been filed during the fifty years immediately preceding the date on which was filed the application in reference to which the search is being made.

This will make the period over which the search will take place extend back to 1855, but it is very important to note that up to 1884 provisional specifications were published, no matter whether they were followed by a complete specification or not.

There will thus be 30 years of published provisional specifications which have not been followed by complete ones, which will be ignored by the examiners in their search.

Now it is a matter of common knowledge to those who have had anything to do with searches that many of these provisional specifications are very clear reading, and contain sufficient information to constitute a complete anticipation, by publication, of later patents.

And that a published provisional specification not followed by a complete one may prove dangerous was amply exemplified in the action *Lawrence v. Perry*, where it was held that the invention to support the patent for which the action had been brought was fully anticipated by a published

provisional specification which had not been followed by a complete one.

Again, no less a person than Judge Jessel in the case of *Stonor v. Todd*, clearly showed himself alive to the possibility of an invention being anticipated by a published provisional specification.

What then can be the value of a search which proposes to ignore thirty years of such published information?

In our opinion the search will be an irritating nuisance to everybody concerned, for it will neither satisfy the applicant that his invention is new, nor convince a would-be purchaser that his patent is valid; for let it be always carefully borne in mind by inventors that notwithstanding the search, the Government will not guarantee the validity of the patent, nor take any responsibility in connection therewith.

However, the inventor has clamored for this country to play the monkey to the United States in the matter of a search, and we hope he will be pleased that Providence has answered his appeal.

He would, however, have shown himself a great deal more sensible had he left alone the request for a search, and confined his attention to obtaining a reduction in the amount of the renewal fees, as that is really the only blot on the English system.

But instead of obtaining a reduction for the fees, he will have to pay an extra sovereign for the questionable luxury of a search which will omit thirty years of valuable information bearing directly on the question of the novelty of his invention, and for the further privilege of having a patent issued, with a notification thereon that certain patents have been cited against him to show his invention is not new.

As to overcoming objections when an examiner has made up his mind that there is anything to object to, our experience of examiners all over the world is that as a general body—with a few bright exceptions, which only prove the rule—they are the most obstinate, self-sufficient set of jacks-in-office it can be anyone's ill-fortune to come in contact with.

The last state of the inventor will, under the search regulations, be worse than the first, and we venture to think applicants will curse the day that examinations of this trumpery kind were ever introduced into the English patent system.

And to buyers of patents, the search will be worth nothing, as if the patent passes safely through the Patent Office, they will still have to make a search to be sure of the novelty.

But after all, what is the use of a search among specifications only, and least of all among the specifications of English patents only, when there are piles of foreign specifications in the Patent Office Library which have been open to public inspection for years, and any one of which might be produced to prove anticipation, and succeed in doing so.

No one is bound to patent his inventions, and therefore a search among specifications is no guide as to novelty, as any proved publication or use would be equally as destructive of novelty as a prior specification.

As it is utterly impossible to have an exhaustive search, therefore it is utterly impossible to prove the absolute novelty of an invention, and the simplest and most satisfactory way out of the difficulty is to grant patents to whoever cares to pay for them.

The old legal maxim of "caveat emptor" (let the buyer beware) applies to patents as well as other things, and is equally applicable to the inventor who buys a patent from the Government, as to the man who purchases the patent from the inventor. Each must look after himself.—*Patents.*



FIG. 3.—MOVABLE SPRINKLER.

Colossal as this undertaking is, it is but one of similar enterprises in which Uncle Sam is now engaged. Works of equal magnitude are under way in Nevada, Idaho, and other states. Two million, six hundred thousand dollars have been appropriated to irrigate the deserts of Idaho by the waters of the Snake River. The dam is to be made 50 feet high. Above the site for miles the stream runs through a narrow canyon, and the dam will back the water up for the distance of about 25 miles. Surveys have shown that by diverting the water into irrigation canals, it is possible to supply water by gravity to 68,000 acres of good land; in addition, it is possible to divert about 3,000 cubic feet of water per second—which is appropriated by vested interests below—and by turning this back into the river, generate over 10,000 horsepower, which will be used to pump water to over 80,000 acres of land lying above the gravity canals, making a total area reclaimable from this project of about 130,000 acres. The cost of irrigation is about \$25 per acre, and similar lands when reclaimed are selling at from \$40 to \$100 per acre.

Apart from such mammoth tasks, the irrigation work of the Government covers the digging of canals, the conducting of special studies as to methods of distributing water so as to lessen losses from seepage and evaporation, and the preparation of plans for draining land in both arid and humid parts of the United States. It is a noteworthy fact that in many cases, evils have resulted from the use of too much water, causing the swamping for the present of large areas of land that were a few years ago highly productive farms. The use of water in excess of the needs of crops not only reduces the yields and ruins the land, but it deprives other ground of the needed water supply.

irrigation in Wisconsin and elsewhere promises equally important additions to the productive capacity of lands in the North. Irrigation is destined to be a large factor in market gardening and in the production of forage crops throughout the country. In view of the wide application of the system, some account of the implements and methods employed may be of interest.

About thirty different methods of applying water are in use, including the various ways of preparing land by checking, compartments, deep and shallow furrows, flooring, sprinkling, sub irrigation, etc. The cost of preparing land for irrigation is in many instances greater than the cost of building canals and reservoirs. The first task is to remove the sage brush and boulders that abound in the arid regions, and then to level the land by plowing, harrowing and rolling. When the surface of the field is too uneven for the use of these methods, railroad scrapers may be employed, as shown in the accompanying cut (Fig. 1). Ditches are then cut to the main canal, and smaller laterals to supply all parts of the fields. These may be made with a ditching machine (see Fig. 2), or with the double mold-board plow, and cleaned out by means of a steel shovel attached to a beam, having handles like those of a walking plow. In use, this implement is drawn by one horse, and the loose dirt is carried forward by the shovel and dumped in heaps wherever it is desired to have dams. These may be allowed to overflow, or the water may be dropped through a box to a lower level.

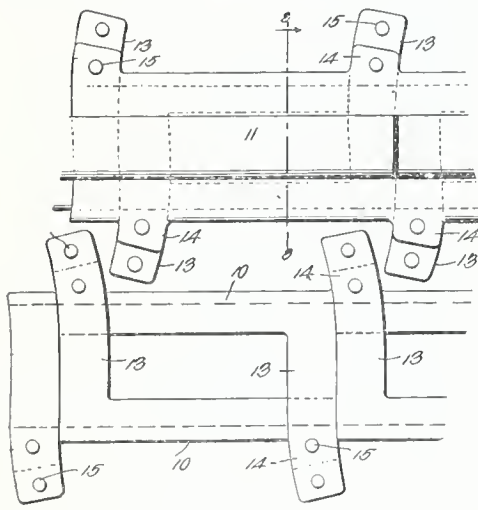
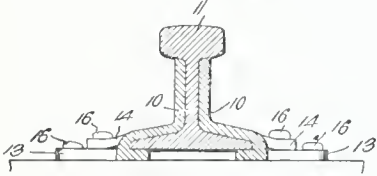
In the check system, fields are divided into basin by embankments. These basins are filled with water, which gradually overflows the entire surface. This is possible only on lands which have a uniform and slight slope. Where water can be obtained under a slight pressure, it may be dis-

CLEVER NEW PATENTS.

Rail Joint.—Nut Lock.—Vegetable Cooker.
—Latch.—Lamp Burner.

Rail Joint.

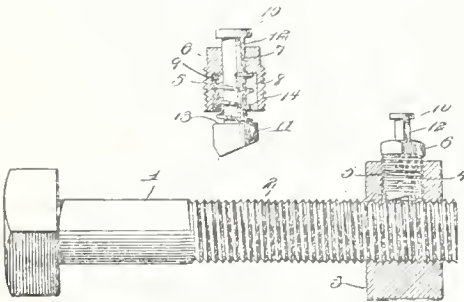
Mr. James R. Gilbert, of Kissimmee, Florida, has patented a rail joint, the striking feature of the invention residing in the fact that the necessity of transverse clamping bolts through the rails is dispensed with. The joint consists of plates 10 arranged to embrace the adjacent ends of the rails, each plate consisting of a longitudinal portion that embraces the vertical web and rail flange, and has alternating spaced clips 13, and 14, extending



laterally in opposite directions. One series of the clips is curved longitudinally of the plate and is adapted to extend beneath the rail flange, while the other series is reversely curved and extends over the ties in opposite directions. By this simple arrangement, a very firm joint is provided which holds the rail ends with great rigidity, and without the necessity of mutilating the ends either with recesses for the spikes in the rail-flanges, or transverse apertures in the vertical webs for the clamp-bolts.

Nut Lock.

Still another nut lock has been devised and patented, this time by Mr. William C. Miner, of Traverse City, Michigan, who has sold a one-half interest in his patent to Mr. William I. DeKay of the same place. The device may be employed in connection with an ordinary nut, which nut, however, must first be provided with an opening that intersects the usual threaded bore. Into this opening is screwed a plug 5,

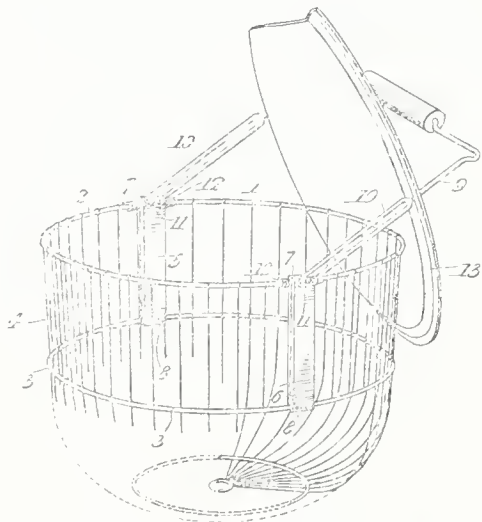


having an inner recess 8, and in the plug is slidably mounted a stem 12, provided at its inner end with a head 11, that engages the threads of the bolt. The head is held in engagement with such threads by means of a spring

coiled upon the stem and located in the recess. In practice, the pressure member 5, will be screwed tightly home in the opening 4, thus compressing the spring and causing the latter through its expansive action to force the locking member 11 into secure engagement with the bolt, it being understood, of course, that the member 11 will be prevented from rotation through such engagement during the operation of tightening or releasing the member 5. When, however, the latter member has been loosened sufficiently to relax pressure upon the spring, the outer end of stem 12 may be engaged and actuated for operating the member 10 to release the bolt and to permit free movement of the nut; or if it be desired to entirely remove the locking device from the nut, total disassembly of the parts of the device will be prevented, as above explained, thus the device remaining intact for ready re-engagement. The device constitutes an efficient holding means for a nut which does not mutilate the threads of the bolt, and which may be released when desired, in order that the nut may be turned.

Vegetable Cooker.

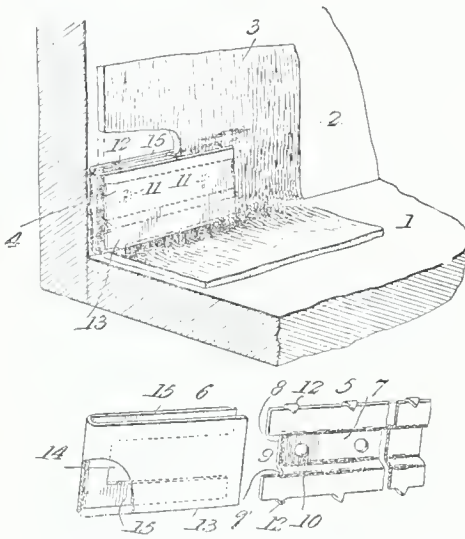
A unique vegetable cooker is the invention of Mr. John H. Hayes, of East Tawas, Michigan, and the patent obtained thereon is now practically owned by Mr. Louis H. Braddock, of the same place. The device is in the form of a wire basket 1, which can be suspended in a suitable boiler or pot, and has enclosed guides 5, 6, on diametrically opposite sides. A bail or handle 9 is pivoted to the upper ends of these guides and is slidable with respect thereto, the terminals fitting within the same. A cover 13 is carried by the bail and is located between the side arms thereof. It is adapted to close the open top of the basket when



the ends of the bail are housed within the guides. The operation of the device is simple. The material is first placed in the basket and the terminals of the bail are slid within the guide-tubes, so as to occupy minimum amount of space, at the same time efficiently holding the cover on the top edge of the receptacle. When it is necessary to remove the contents of the basket, the handle is drawn outward from the guides until the terminals of the handle move to a point adjacent to the intermediate portion of the wire, when the wire will act as a fulcrum, permitting the handle to swing and carry the cover out of the way. When desirable to recover the receptacle, the handle can be readily retracted. It will also be observed that the cover 13 serves a dual purpose—acting as a cover both for the inner receptacle and the outer receptacle or pot 15. When the handle members are withdrawn from the guides, with their lower ends engaging the fastening-wire, it may be used in the ordinary manner to lift the basket from the pot.

Carpet Fastener.

Another simple and entirely efficient fastener has been devised for securing carpet to stairs, the same being the joint invention of Messrs. Robert C. Russell and Andrew W. Siegel, of Williamsport, Pa. They employ a base plate 5, adapted to be attached to a stair and having a longitudinal rib 8, disposed between its transverse edges. Carpet-engaging teeth or prongs 12, are formed upon the edges of the base plate. Combined with this base plate is a carpet-engaging member 6, co-operating with the plate to hold a carpet between them. Said member 6, comprises an outer plate 13, and a pair of inner spaced arms 15, adapted to engage in rear of the base plate and receive the rib between them. It is to be noted that the outer plate 13, is of a transverse width slightly less than the distance between the

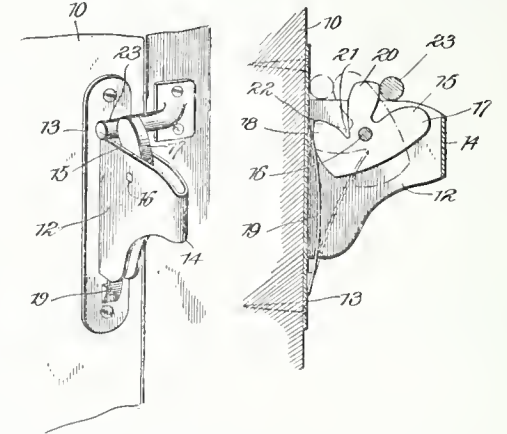


teeth 12 on opposite sides of plate 5, whereby when the parts are assembled the edges of the plate will lie just within the line of the teeth, thereby pressing the carpet into direct and secure engagement with the latter; and, further, that when the member 6 is moved to position upon the member 5, it will be limited or stopped in such movement by the end 9 of rib 8 with which it will come in contact. It is apparent that in order to secure the carpet in position, the member 5 is attached to the stair, the carpet laid over and pressed downward upon the teeth 12, and the member 6 slipped by an endwise movement into position with its plate 13 overlying the carpet, and its arms or elements 15 engaging in rear of the member 5. Thus is produced a device which in practice may be readily applied or removed, and one which holds the carpet firmly and securely in place.

Latch.

The present device is the invention of Mr. Thomas O'Shaughnessy, of San Jose, Cal., and it is particularly designed for holding screen doors and the like against accidental opening, and yet permitting the same to be opened when sufficient force has been applied thereto. The latch consists of two members, one of which is in the form of a casing 12, adapted to be secured to a door-frame, and having a downwardly curved upper edge. A latch element 15 is pivotally mounted within the casing and comprises a heel 18 and a trip arm 20. A spring 19, secured within the casing, bears against the concentrically curved heel and is adapted to engage in a recess between the same and the trip arm. The other member of the latch is in the form of a pin 23, secured to the door and arranged to slide over the upper edge of the casing and engage between the trip and the outer arm of the latch. Thus, when the door swings to closed position, the pin will be held by the spring, and when said door is forced outwardly the spring will, of course, yield to permit the outward movement and release the pin from the latch. By this simple arrangement

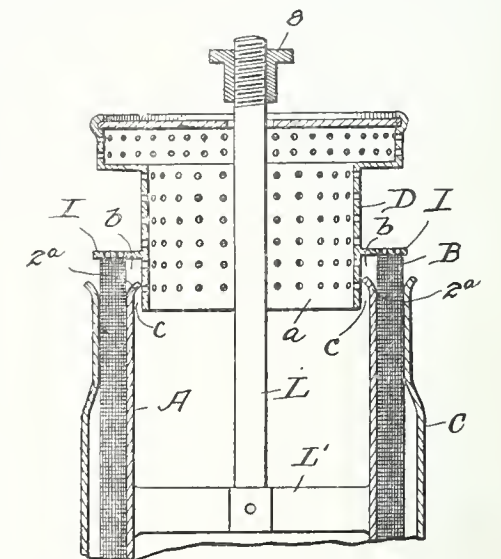
screen-doors and similar structures will be held closed with sufficient firmness to resist the reverse air-currents, which have a tendency to swing them



partially open against the force of the springs in the hinges, and requiring the employment of larger and heavier springs than would be required to merely close the door automatically.

Lamp Burner.

A simple and apparently entirely novel construction of central-draft lamp-burners has been patented by Mr. Joseph Gregory, of Jersey City, N. J., a well known inventor in this type of lamps. The principal feature of the invention is the provision of an air passage between the cone or flame spreader and the inner wick-tube to prevent over-heating the adjacent portions thereof, and furthermore to provide a gas-space of which one wall is formed by the inner portion of the upper surface of the wick and from which the gas is permitted to escape to the flame. The usual inner and outer wick tubes A, C, are employed, and upon the upper end of the wick placed therein, rests a guard I, carried by the cone or flame-spreader D, which spreader extends upwardly above the guard and also below the same, the lower end fitting within the wick tube and being separated therefrom to form an air space or passage with which communicate perforations in the lower end of the spreader. This prevents the over-heating of the upper portion of the inner wick tube and the adjacent portions of the cone or spreader, thereby preventing the charring of the upper end of the wick at this point. Extending upwardly



from a transverse bridge-piece in the inner tube is a guide rod L, provided with an adjustable nut 8, which serves to limit the upward movement of the cone or spreader. At the upper end of the wick above the spacer, and closed at its outer side by the inner surface of said wick, is a gas-space of which the adjacent portions of the band or ring a and the guard I form the inner wall, means being provided for the escape of the gas from this space to the flame. Said means consist of perforations in the inner wall of the gas-space, and the upward current of air induced by the flame draws the gas as it is generated at the inner surface of the wick through the perforations, and conveys it to the flame to add to the illuminating capacity of the lamp.

SAFETY DEVICES FOR RAILWAYS.

THE enormous list of casualties on railways makes of general interest a recent report by Consul General Mason, of Berlin, in regard to tests of a novel safety device that are being made by German authorities.

The device, which is electrical in nature, is designed to prevent collisions between railway trains. Midway between the rails is laid a light third rail of an ordinary T-pattern, the joints of which are so connected as to form a continuous conductor. Midway under the forward part of the engine is hung the working instrument, an electrical apparatus inclosed in a square case or jacket occupying a cubic foot of space. The instrument is connected with a contact shoe, which slides along the third rail, and by wires with a telephone and electric alarm bell in the cab of the locomotive; and a red incandescent lamp is lighted by the same impulse that rouses the alarm bell into action. A further improvement of the device sets the electric brakes on the engine or the entire train, simultaneously with the alarm signal which sounds the bell and lights the red lamp.

The apparatus is so adjusted and arranged that the engineer can at any moment, by touching a lever, satisfy himself that it is in full working condition. In the experiments, which were conducted on one of the most important railways of Germany, two locomotives were equipped with the new device. Engine No. 1, drawing a train and approaching a station at full speed, received the danger signal and came to a full stop. The engineer asked by telephone the cause of the signal, and received from the keeper of a grade crossing, half a mile in front, word that a wagon had broken down in crossing the track and had obstructed the line. After ten minutes wait the engineer received word by telephone that the obstruction had been cleared away, and thereupon resumed his trip.

A mile further on, the signal again sounded, and the engineer was informed by telephone as before, that the semaphore round a curve, and more than half a mile distant, was set at "halt." Thereupon the engine slowed down and proceeded cautiously, sounding its whistle at short intervals, the telephone bell in the engineer's cab ringing continuously until the curve was rounded, when the ringing ceased, notifying the conductor that the semaphore had changed to "track clear." Thereupon the engine resumed full speed.

In the tests to prevent collision, engine No. 2 came up rapidly from behind on the same track as No. 1, which had slowed down and was proceeding cautiously in consequence of reported danger in front. The moment that No. 2 came within 1,000 yards of No. 1, the signal on both engines began to ring and their red lights to glow. Thereupon No. 2

halted, the engineer inquired of No. 1 the cause of the alarm, and a complete understanding between the two trains was immediately established.

An important point in this connection is that in practice, the same warning signal is sounded upon every engine equipped with the apparatus which is on the same track and within the prescribed radius—half a mile or a mile, as the case may be—from the engine and train which cause the obstruction. If a semaphore signal be falsely set at safety, the train may run past it into a block in which another engine is halted, moving with perfect security that warning will be given in ample time to prevent a collision under any and all conditions of darkness, fog, storm or mistaken instructions.

In effect, the invention puts the engineer of every train into instantaneous touch with other trains, switchmen and station and crossing keepers in his neighborhood, and keeps ever before his eye and ears an automatic and infallible signal, which springs into activity the moment that his locomotive, whether running forward or backward, comes within the radius of danger from collision.

The Russian government is about to test this new invention in actual service on military lines in Siberia.

"What ghastly wrecks might be spared," concludes Consul General Mason, "what precious lives saved, what a sense of added security given to multitudes of railway travelers, what delays avoided by a device which puts the man behind the headlight, rushing on through night and fog and storm, into instant and unerring touch with those whose duty it is to watch and guard the safety of the lines."

An account of another system for avoiding railway accidents comes from far off New Zealand. An interesting change has recently been made in the signaling system in use in that colony, which it is thought will make collisions absolutely impossible. For a long time the block system has been generally used, but what is known as the "tablet" method has now been introduced. The essential point in the new system is that no engineer is allowed to leave a station without a tablet in his possession, and the element of safety lies in the fact that the machines are so made that it is impossible for two of the tablets to be out at the same time. If a driver leaves Auckland for Newmarket, say, with a tablet, that tablet has to be deposited in the machine at Newmarket before another tablet is issued allowing a return train to leave that station for Auckland, and the electrical connection between the two stations makes it impossible to extract a tablet from the Auckland machine until the tablet has been put into the machine at Newmarket. It is claimed by railway experts that under the new system, two trains cannot be on the same section at once, thus obviating the danger of collisions.

Wireless Telegraph Prospects.

Within the past month the record distance for overland wireless telegraph signaling in this country has been increased from 107 to 300 miles, the successful operators having transmitted signals from St. Louis to Chicago by the De Forest wireless system. The country between Chicago and St. Louis is practically level, and therefore is better suited, theoretically, to wireless transmission than a mountainous country would be. The results of these experiments were attested by Professor W. E. Goldsborough and a jury appointed by the Exposition authorities. A notable feature of the tests was that the cities of Chicago, and St. Louis intervened between the two transmitting stations, the results of previous experiments having indicated that the intervention of cities would prove to be a serious obstacle to the transmission of wireless signals.

Wireless signaling overland is, of course, not altogether a novelty. It is, for instance, well known that Fessenden has had in experimental operation a circuit between Jersey City and Philadelphia, a distance of about 100 miles, for more than a year. In the experiments also that Marconi carried on between the Mediterranean and Poldhu, England, in 1902, it may be remembered that signals were reported to have been received from Gibraltar, and beyond—a distance of 750 miles, several hundred miles of which were over land. These last mentioned signals were, however, sent in one direction only, namely, from Poldhu to the Italian cruiser, Carlo Alberto, the transmitting apparatus at Poldhu being very powerful. In the De Forest experiments between St. Louis and Chicago, the masts were 200 feet high and twenty vertical wires were employed. It is now stated that attempts will shortly be made to open up communication by wireless telegraphy to New York from St. Louis—a distance of 1200 miles.

In the event of these recent overland experiments being continued, it will be interesting to ascertain, if such a thing be feasible, whether the overland telegraph and telephone wires and the numerous railroad tracks between the various cities named, play any part in the transmission of the electric waves. It was suggested, when the trans-Atlantic experiments were made, that the Atlantic cables might have played some part in the transmission of the signals, but it was then pointed out that the high capacity of these cables precluded the transmission of rapid electric waves by their means. On the sliding wave theory of propagation of electric waves over the surface of the earth and sea, however, it is within the possibilities that the multiplicity of wires and rails may facilitate the transmission. The necessity for the large earthplates used in the present experiments, namely, 140 square feet of copper, buried 8 feet in the ground and kept constantly damp, would tend to bear out this view. Likewise, if there be merit in the Fessenden wave chute, which consists of comparatively

small metal conductors extending along the earth from the foot of the vertical wires, a distance of several hundred feet in the direction of transmission, there ought to be additional merit in the presence of railroad tracks extending practically the entire distance between the wireless stations.

While the success of any new wireless experiments will probably always be made the occasion of exuberant jubilation by the promoters of the successful system, such success, regardless of the distance covered, need not occasion any surprise to the initiated, since theory indicates that with an unlimited number of wires and a sufficiently large generator for charging the wires, there is practically no limit to the distance to which signals may be transmitted. But in view of the well recognized atmospheric and other causes that conduce to irregularities in wireless transmission, the transmission of wireless signals experimentally for a few minutes at a time between any two points, whether over land or sea, cannot be taken as a measure of the amount of business that may be transmitted continuously over that circuit. At best, the amount that a wireless circuit or two, in the present state of the art, will add to the existing overland wire facilities, is but a drop in a bucket, which remark is made with full knowledge of the great and recognized value of wireless telegraphy where wires are not available.

Contemporaneously with the announcement that Dr. De Forest has succeeded in sending messages by his wireless system from St. Louis to Chicago, 300 miles, comes the prediction by the promoters of the enterprise that in the course of a few months messages will be sent direct from Seattle, in the State of Washington, to the Philippine Islands. "If this is accomplished," says the careful reporter, "the trans-Pacific cables will probably be abandoned as a means of communication (to what other use could they be put?), and the millions of dollars invested in the cables will be a dead loss."

If the changes had not been rung ad libitum on this (to the holders of cable stock) dreary subject, when four or five years ago certain other interests were predicting the immediate opening up of trans-Atlantic wireless communications, with all sorts of dire consequences to the existing cables, which, by the way, are still doing business at the old stand, some credence might be placed in the present predictions; but with the long list of promises unfulfilled as to the trans-Atlantic wireless telegraphy, they must be gullible indeed who will give patient attention to any statements relative to trans-Pacific wireless telegraphy, however specious, that fall short of actual proof of the regular transmission of business.—*The Electrical Age*.

To keep themselves posted in the progress of the art in which they are interested, inventors and manufacturers should subscribe for the INVENTIVE AGE, which publishes a list of all patents issued each month. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

MECHANICAL INVENTIONS AND DESIGNS

Patents for which have been procured
through the Patent Soliciting Office
of E. G. Siggers, Patent Lawyer,
Washington, D. C.

James J. Ingram, Stephen D. Rigdon, assignee: Germantown, Ky. **Animal Yoke.**—This patent covers an ingenious device, adapted to be readily applied to, and removed from, an animal, and capable of effectually preventing the same from breaking through fences or other barriers. The yoke is provided at the back with a cross bar carrying means for prodding an animal. The cross bar extends from each side of the yoke, and forms obstructions, whereby the animal will be prodded, should it attempt to break through a fence.

Perry A. Reno, Reynoldsville, Pa. **Packing or Shipping Box.**—This invention relates to a knockdown box, designed for shipping all kinds of merchandise, and adapted to be returned to the shipper in a compact condition. It is constructed of sheet metal, and the corner edges of the sides slidably interlock to form a solid corner brace. The top and bottom are fitted within the sides, and are provided with outwardly-extending flanges, secured to the sides and forming solid reinforcing or bracing portions, which connect the corner braces.

John M. Shelton, Ardmore, Ind. **Ter. Two patents. Vending Cabinet and Coin Controlled Mechanism.**—The first patent discloses an ornamental cabinet arranged for the display of merchandise. It is equipped with magazines containing small packages or articles which are delivered automatically upon the deposit of a coin and the actuation of any one of a series of keys by the vendee. When the key is operated, the package or article drops upon a flexible chute by which it is delivered to a tilting box or receiver at the bottom of the cabinet.

The second patent discloses an ingenious arrangement for effecting the control of vending mechanism by means of a coin. A slide which is provided at one end with a key or operating handle and at its opposite end with a connection to the delivery mechanism, is provided with a coin slot. Over this coin slot is mounted a swinging detent arranged to engage the slide to hold it against movement, and having an opening through which a coin may be deposited in the slot in the slide. When so deposited, the coin acts as a releasing device for the detent so that the slide may be operated to deliver a package or article. When the package is delivered, the coin drops out of the slide and is received in a money draw. The coin is delivered to its operative position by means of a pivoted chute member. This member is so arranged that it acts as a coin detector. If the coin is too light, the chute fails to move and the coin is therefore allowed to gravitate to a suitable receptacle, but is not delivered to the slide. If the coin is too heavy, the chute member tilts in one direction to discharge the coin in another direction. If the proper coin is inserted, the other end of the chute section tilts down and delivers the coin to the slide.

Wm. L. Ralston, West Chester, Ia., **Telephone Cut-Out.**—This device is in the form of a simple attachment to a telephone. It ordinarily permits the circuit to be closed through the telephone in the usual manner, but in the event of an electrical storm, it is adjusted to cut out the telephone and ground the circuit through an artificial resistance. This resistance is

so arranged that while it ordinarily causes the current to pass through the telephone, it includes a small space between two highly conductive members. If the line wire is struck by lightning, or if a current of high tension is otherwise induced in the line, it will jump or arc the interval and will be grounded by way of a shunt. By this means the liability of injury to the telephone or an operator thereof from lightning is avoided.

Frank M. Durham and Albert Peek, Aurora, Ill. **Copy Holder.**—The Durham-Peek copy holder, for holding stenographic or other copy in various positions to facilitate the transcription of the notes, is capable of being easily attached to either a horizontal or a vertical ledge of a table or desk. The device includes an adjustable standard comprising telescopic members. One of these members is provided with a clamp of peculiar form which may be adjusted to various positions. The other member of the standard is formed at its upper end with a frame comprising parallel upper and lower bars. To this frame is designed to be attached the book support or holder proper, which is in the form of a metal plate provided on its front face with a clip which retains the copy. At the back of the plate are a series of hooks engaging over the bars of the frame and preferably integral with the plate.

Leander Clark, Greenville, Ohio. **Attachment for Mowers.**—This attachment is capable of being connected to ordinary types of mowers, and is arranged to deposit flax, clover, or the like, harvested by the machine, in loose shocks or bunches. The attachment includes a dumping platform to which the harvested material is fed, and a dumping device arranged to be manipulated by the driver to dump the shocks or bunches accumulated on the platform. The device also includes a lateral conveyor, and means for throwing the same into and out of gear so that the material may be fed continuously to the dumping platform, or may be accumulated upon the lateral conveyor, and delivered therefrom at intervals, if desired.

Sarah E. Rice, Administratrix of James N. Rice, deceased, Scranton, Pa. **Steam Generating System.** Two patents.—Two very interesting patents have recently been issued to Mrs. Rice for inventions made by her late husband. The apparatus disclosed in these patents is designed to facilitate the continuous generation of steam in quantities proportionate to fluctuating demands, and is intended more particularly for the supply of motive fluid to the engine of an automobile or other self-contained mechanism. Within a casing is mounted a boiler coil over which is disposed a heating coil. The upper end of the heating coil is in communication with the lower end of the boiler coil and with an overflow pipe, and the lower end of the heating coil is in communication with a steam pump which supplies it with water and is operated by steam from the boiler coil. Below the boiler coil is a hydrocarbon burner to which liquid fuel is led from a suitable tank. In the line of connection between the fuel supply and the burner, and also in the line of connection between the heating coil and the boiler coil, is a regulator automatically operated to regulate the supply of fuel to the burner and of water to the boiler in accordance with the fluctuating demands upon the motor. This operation of the regulator is effected by supplying the same with water and liquid valves which are normally open, but are closed by the pressure of steam supplied to the regulator from the boiler coil. Therefore, these valves will be closed more or less and the supply of water and fuel regulated in accordance with the pressure of steam in the boiler.

Fletcher Bandy, Trion Factory, Ga. **Combined Cultivator and Cotton Chopper.**—This machine is adapted to loosen the ground, turn the same outwardly at opposite sides of rows of cotton so as to expose the lower ends of the stalks, chop the latter at intervals to thin out the same, and finally return the loosened soil to the stalks, which are left standing. The cultivating means are swung from the frame of the machine in advance of the chopper, and means are provided for supporting the cultivating means when the same are swung upward into an inoperative position.

Thomas Fritschek, Dodge, Nebraska. **Hay and Straw Cutter.**—The hay and straw cutter is adapted to be readily operated, and it is provided with simple and effective means for enabling the material to be accurately and positively fed to the knife or cutter without liability of the fingers of the operator coming in contact with the blade or cutter. The invention comprises a trough, a follower arranged within the trough and extending through openings in the opposite sides thereof, brackets located beneath the follower on the exterior of the trough, springs interposed between the follower and the brackets, guide rods supporting the springs, a foot lever connected with the follower, and a cutter.

James M. Nichols, Adelaide, Ga. **Bedstead Fastener.**—The bedstead fastener consists of an ingenious arrangement adapted to permit the side rails and corner posts to be readily connected and separated, and capable of effectually preventing vermin from obtaining access to the interlocked parts. It comprises a plate or member secured to the post and arranged within a recess of the side rail, and having a slot, and a second plate or member secured to the side rail and having a tongue engaging the slot. The plates or members present tightly-fitting metallic surfaces, which exclude vermin from the slot or recess.

John W. Altmeyer, inventor, Springfield: Cyrus Fisher, assignee, part-interest, Central City, Iowa. **Fence Post.** Two patents.—Both patents relate to metallic fence posts of skeleton or open-work structure, which combine ornamentation with strength and utility. The post of the first patent comprises corner uprights, substantially horizontal brace frames connecting the uprights, and diagonal braces arranged between the frames, and also connecting the uprights.

The post of the second patent involves a novel arrangement of transverse braces, which consist of a single continuous piece of metal zigzagly bent and secured at the bends to the uprights at different points, so that only two parts or pieces are united at the same point to facilitate electric welding.

J. Frank Runkel, inventor, Columbus, Ohio; E. P. Frink, assignee, part-interest, Seattle, Washington. **Paint Brush.**—The paint brush, while exceedingly simple and inexpensive in construction, possesses great strength and durability, and is provided with means for firmly securing the bristles to the handle without interfering with their elasticity. The brush head has an exterior shoulder and is provided with a projection, which is hollowed out to form a complete interiorly-arranged socket. A mass of bristles is secured within the socket, and other bristles are arranged on the exterior of the same forming a solid continuous mass. An exterior ferrule embraces the outer bristles, and is secured to the brush by fastening devices, which also pierce the walls of the socket and engage the inner bristles.

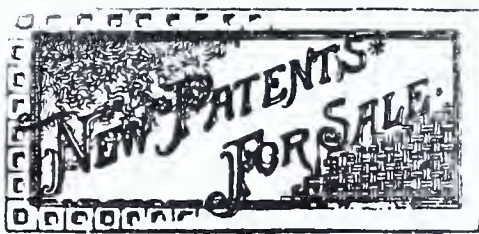
James W. Green, Portland, Oregon. **Process of Preserving Eggs.**—This process is particularly designed for preserving eggs in a simple, con-

venient and economical manner without changing the color of the eggs or impairing them in any manner whatsoever. It consists in placing the eggs in an air-tight receptacle, creating a vacuum to permit the escape of germs or gases from the interior of the eggs, and then subjecting the eggs to a gaseous antiseptic to kill the germs, and to prevent decomposition. The gaseous antiseptic is then removed, and the pores of the eggs are closed by a soluble sealing material.

Grace H. Stults, West Roxbury, Mass. **Game.**—This invention relates to games of the "tennis" or "ping-pong" type, and it has for its object to provide an improved barrier corresponding to the ordinary net, and having pockets into which the balls are driven. The barrier consists of a light board having openings and provided with individual pockets, which surround the openings. Some of the pockets are arranged on the side of the barrier, and some on the other side.

Annas Hummel, Huntingdon, Pa. **Artificial Tree.**—It is the aim of the present invention to enable natural branches to be supported in imitation of a real tree for decorative purposes. It is especially adapted for use as a Christmas tree, and it is composed of removable hollow telescopic sections, and branch-receiving sockets radiating from the stem sections. The device is also provided with a hollow base, which may be weighted with sand, gravel, water, or the like to increase the stability of the same.

Clarence L. Parker, Los Angeles, Cal. **Pump.**—This patent is for a most ingenious pump especially designed for deep well service, wherein all valves are positively operated, the plunger and barrel are self-cleaning, and the friction incidental to the operation of the parts is reduced to a minimum. Within a pump barrel of sectional form is mounted a reciprocating plunger, associated with which is a sucker-rod equipped at opposite ends of the plunger, which is hollow, with the top valve and the working valve. The lower end of the sucker-rod is made hollow to form a chamber in which is slidably mounted and frictionally retained, the enlarged head of a lifting-rod which extends down to and passes through the standing valve, seated upon a valve seat formed at the upper end of a cage located at the lower extremity of the pump cylinder. This cage is extended below the cylinder to form a strainer. At a point below the standing valve, the lifting-rod is provided with a member which reciprocates within the upper end of the cage. Upon the initial upward movement of the sucker-rod, the foot or standing valve is opened positively by the upward movement of the lifting-rod and the working valve is moved upwardly at the same time to close the lower end of the plunger. The plunger will then move up with the continued movement of the sucker-rod to lift the liquid, and during this movement, the standing valve will remain in its open position for the reason that the sucker-rod will move relative to the lifting-rod. As soon as the movement of the sucker-rod is reversed, the working valve opens to permit the upward passage of the liquid through the plunger and past the top valve which it opens. Simultaneously with the opening of the working valve, the standing valve is closed, because by reason of the frictional engagement between the sucker-rod and the lifting-rod the latter is moved down to close the standing valve, after which the sucker-rod moves down independently of the lifting-rod. By this arrangement both the standing and working valves are positively operated, and by providing the plunger and barrel with cutting edges, the contacting surfaces of these parts are constantly and automatically kept clear.



Advertisements inserted in this column for 15 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—Patent No. 768,028. Spring Gun. Will give to some reliable manufacturer to manufacture on a royalty basis. Address, Robert Braum, Care of 207 Orchard Street, Elgin, Ill. mar

FOR SALE—Patent No. 763,340, dated June 21, 1904. Wire Winding Machine. Simple to construct, cheap to manufacture. Every farmer will buy one. Sell for cash or royalty. Send for drawings. Address, James S. Brandon, 508 East 10th Street, Cheyenne, Wyo. mar

FOR SALE—Patent No. 770,107, dated Sep. 20, 1904. Buggy Wrench. Will hold the tap and not grease the hands. Manufactured cheap, and a quick seller. Address, J. M. Carroll, Stockdale, Texas. mar

FOR SALE—Patent No. 771,378, dated October 4, 1904. Bag fastener for all kinds of grain bags. It also makes the best horse-tail holder on the market. Address, O. K. Luther, 11 Riggs Street, Ansonia, Conn. mar

FOR SALE—U. S. Patents No. 757,941, dated Sept. 1, 1903. Valve Cut Off for Tanks; and No. 769,550, dated Sept. 6, 1904. Supply and Service Tanks. Will sell cheap for cash. Send me an offer. Will lease on royalty. Address, P. J. Leithausen, Dehance, Ohio. jun

FOR SALE—U. S. Patent No. 770,418, dated September 20, 1904. Cultivator, planter and fertilizer distributor. Will lease on royalty or sell territory. Make me an offer. Address, James K. Brown, Moultrie, Ga. mar

FOR SALE, or on royalty.—Patent No. 761,514. Baby Walker. Can be manufactured and sold at a good profit. Every household should have one. Address, Benj. Leininger, Florence Avenue, East McKeesport, Pa. mar

FOR SALE—Patent No. 776,922, dated December 6, 1904. A new pump, windmill or hand power. Satisfaction guaranteed. Address, P. J. Leithausen, Clarendon, Tex. jun

FOR SALE—Patent No. 775,427, dated Nov. 22, 1904. Screw Holder and Driver. Simple and Practical. A great labor saving device. Address, C. Lusted, Sr., Lafayette, La. mar

FOR SALE—Canadian Patent No. 84,967, and U. S. Patent No. 717,911. Stone Cutting Machine. Price \$1,500. Address, Claude L. Payne, Box 147, Salem, Indiana. mar

FOR SALE—Invention with stamps, dies, and forming tools. Cheap to right parties. Write for sample and particulars. Address, C. M. McClune, Box 247, Galeton, Pa. mar

FOR SALE—Patent No. 767,833, dated August 16, 1904. Device for regulating electric current, as electric light gas or oil, operating door bells, clocks, annunciators, burglar alarms, signs, telephones. Will sell outright. Address, F. E. Phillips, Hyde Park, Mass. mar

FOR SALE—Patents No. 774,693, Steering Apparatus for Ships, issued Nov. 8, 1904; and No. 755,928, Heat Regulator, March 29, 1904. Address, John Peterson, Lake George, N. Y. dec 05

FOR SALE—Patent No. 764,855. Storm Shield for Carriages. A sure winner. Every buggy and carriage owner will want one. Handiest shield yet invented. Address, E. S. Lynd, Orleans, Indiana. feb

FOR SALE—Patent No. 770,980, dated Sep. 27, 1904. Hay Stacker and Loader. Is portable and adjustable to suit varying conditions. Address, Frank J. Pavlik, Knoxville, Neb. feb

FOR SALE—Patent No. 771,762, dated Oct. 4, 1904. Safety Washer and Nut for Vehicle Axles. Will sell outright or lease on royalty. Address, William H. Bucke, Eaton, Ohio. feb

FOR SALE—Patent No. 768,802, dated Aug. 30, 1904. Combined Fertilizer Distributor and Cotton Seed Planter. New and original. Would sell outright or state rights. Address, C. M. Huff, Watkinsville, Ga. feb

FOR SALE—Patent No. 775,063, dated Nov. 29, 1904. Combined Nut and Pipe Wrench. Powerful grip. Will not slip on any object. Address, John M. Hoke, Statesville, N. C. feb

FOR SALE—Patent No. 767,755, granted Aug. 16, 1904. A circular can opener superior to all others. Cheap for cash. Contract let to manufacturer by the thousand. Can be manufactured very cheap. Address, W. R. Holder, Bainbridge, Ga. jan

FOR SALE—Patent No. 766,805, dated August 9, 1904. Automatic Car Coupler. No brakeman required to be present. Will sell cheap for cash, or part cash and part on royalty. Address, Gustavus A. Briegleb, Fulton, Mo. jan

FOR SALE—Patent No. 765,106, dated July 12, 1904. Plow. Will sell, or lease on royalty. Something entirely new in plows. Simple and cheaply made. Address, J. T. Simms, Ramsey, Alabama. jan

FOR SALE—Patent No. 761,633, dated June 7, 1904. Automobile Sleigh. Will sell it outright for cash, or will license under royalty. Address, Henry Bryda, No. 37 Canal Street, Woonsocket, R. I. jan

FOR SALE—Patent No. 725,255, dated April 4, 1904. Slide Valve. Steam saving. Terms reasonable. Address, Gus A. Janicke, 1885 7th St., Louisville, Ky. jan

FOR SALE—Patent No. 766,578, dated August 2, 1904. Important improvement in sliding door hangers. Best adjustment for saving time and labor. Of interest to manufacturers. Address, William Axman, 86 Parkhill Avenue, Yonkers, N. Y. jan

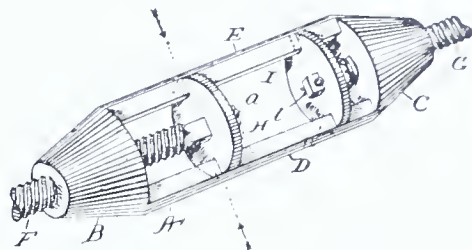
WANTED.

WANTED—To buy or secure on royalty, a patented article for city or county trade. Must be cheap. Send cut and address, Charles S. Coleman, Border City, N. Y. jan

THE COWART SAFETY TURNBUCKLE.

Patented Feb. 16, 1904. Canada Protected.

FOR SALE.



Useful for car builders, steam shovels, ship builders and bridge builders. They will not work loose.

E. H. COWART,
PLEASANTON, CAL. jun.05

Drawings for Inventors.

If you want copies of the drawings of your patent, we can procure them at these prices:

12 copies, each sheet full size (8x13)	\$ 2.50
25 " " " " " "	3.50
50 " " " " " "	4.50
100 " " " " " "	7.00
500 " " " " " "	13.00
1000 " " " " " "	17.00

12 copies, each sheet reduced 1/3 (8 3/4 x 5 1/4)	\$1.25
25 " " " " " "	2.00
50 " " " " " "	3.00
100 " " " " " "	4.00
500 " " " " " "	7.50
1000 " " " " " "	9.00

These copies will be made by the photo-lithographic process, by the firm which formerly attended to the Patent Office work, and will be equally as good as the drawings accompanying your letters patent. Five hundred copies of your patent would cost you at least \$25. We can furnish 500 copies of the drawings, if contained on one sheet, for \$13 full size, or \$7.50, if reduced one-third, the same reduction as your letters patent drawings. Your valued orders solicited.

The Inventive Age Publishing Company,
WASHINGTON, D. C.

FREE!

Send us 2 cents to pay for postage and we will mail you a valuable copyrighted book, "How to obtain Patent, Caveat, Trade-Mark and Copyright Protection, with Decisions in Leading Patent Cases" entirely free of charge. Address:

INVENTIVE AGE PUBLISHING COMPANY,
(Dept. P.) WASHINGTON, D. C.

SWAYZE, BAILEY & CO.,

STATIONERS AND BOOKSELLERS.

OFFICE DEVICES AND SUPPLIES.

617-619 SEVENTH STREET, NORTHWEST,
WASHINGTON, D. C. PHONE 2740

Thousands

of inventions in the field of Railway and Engineering are being patented every year.

The Railway and Engineering Review

carries more advertisements of patent attorneys than any other railway paper in North America.

For rates, address—

The Railway and Engineering Review,
1305 Manhattan Building, Chicago.

A NEW BOOK FOR INVENTORS.

Patents and How to Make

Money out of Them.

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trademarks and copyrights. It also tells accurately How and What to Invent How to sell Inventions, Place them on the Market, Interest Capital in them, and to successfully Promote a Stock Company. It also contains an index of forms worth double the price of the book, to any one interested.

ELEGANTLY CLOTH BOUND.

GOLD STAMPED. \$1.00 Postpaid.

Sent with one subscription to AGE for \$1.75.

Or will sell separately.

Address— **The Inventive Age Pub. Co.,**

918 F St., N. W. WASHINGTON, D. C.

Magic Rheumatic Cure!

It absolutely does cure. It is not a cheap remedy but it is a cheap cure. Mark the distinction! There are a thousand remedies to one cure. This is A CURE. It costs \$2.00 a bottle, and is worth \$20.00 to any sufferer. Sold only by our authorized agents or direct of us. Send for circular. Agents wanted.

MAGIC CURE CO.

R. 313-315 Dearborn St.

Chicago.

Bee-Keepers

Should all subscribe to

THE AMERICAN BEE-KEEPER,

(Established 14 years.)

50 cents per year.)

The best magazine for beginners. We will send it **Six Months on Trial** for 20 cents. Sample copy free.

Address:

The American Bee-Keeper, Falconer, N.Y.

It is published by the

W. T. FALCONER, MFG. CO.

One of the oldest and largest makers of bee-keepers' supplies. Catalogue free.



Attention Inventors!

LISTS OF MANUFACTURERS FURNISHED.

We are prepared to furnish lists of manufacturers in any line of industry.

Charge one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: **INVENTIVE AGE Pub. Co.,** Dept. M. 918 F. St., Washington, D. C.

Every subscriber is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad will be inserted three times.

THE INVENTIVE AGE PUBLISHING Co., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

The Inventive Age

AND PATENT INDEX.

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 918 F Street, N. W.,

WASHINGTON, D. C.

The INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND A HALF.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

The INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 15 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,

WASHINGTON, D. C.

Entered at the Post-office as second class matter.

WASHINGTON, JANUARY, 1905.

REPORTS OF COURT DECISIONS.

We take pleasure in announcing that, beginning with the next issue, we shall start the publication of the current decisions of the courts in patent cases. The advance sheets of the Federal Reporter now come to this office, and we are in a position to give to our readers the latest information on the subject of patent litigation. It is an instructive study to patentees to follow the actions of the courts on patents, for it will show that a number of patents are declared void each year, making clear the fact that a patent is only *prima facie* evidence of its validity, and that the courts do not hesitate to declare a patent void where it is shown that a mistake was made in granting the same. However, in order to defeat a patent, the courts require that the proof be so convincing as to show beyond a reasonable doubt that the patent is not valid.

The decisions will also bear on trademarks and copyright matters, with which the interests of this paper are closely called, and we shall endeavor to keep our readers fully and accurately informed on these various subjects. We know of no journal where so much information valuable to patentees can be obtained for the sum of one dollar—the subscription price of the AGE.

THE NEW ENGLISH PATENT LAW.

In our November 1904 issue, we commented at length upon the English Patent Act of 1902, which went into effect January 1, 1905, and expressed our opinion as to the inadequacy of the law to prevent the issuance of invalid patents. We have since learned that our views on this subject are sustained by the editor of *Patents*, published in London, England. In another portion of this issue, we print the opinion of the latter on the English patent law.

It seems to us that the strictures of the editor on the English law are sound, and that said law should be amended to make the search complete, and as exhaustive as the search made by the United States Patent Office; or the examination system should not be introduced. It is absurd to make a partial examination as is proposed to be done by the new law.

CONDITION OF WORK IN THE PATENT OFFICE.

Work seems to be practically at a standstill in the Patent Office so far as actual progress is concerned. While in twenty-one divisions, the first action on an application for patent may be obtained inside of a month or six weeks, yet in only five of those twenty-one divisions, are amended cases given precedence in the order of examination. What particular advantage is it to an applicant to receive the first action on his application inside of a month or six weeks, if he has to wait, as in some instances, from two or three months for the second action? No matter how trivial or unimportant an objection may be made to an application for patent, when that objection is cured by an amendment, or traversed by an argument, the case goes back to the examiner as an amended application, and it must take its turn as such. There is a division of the Patent Office which is now considering new cases filed in the early part of December, though older applications which were amended as far back as last September are just being taken up. In still another division of the Patent Office, the examiner is considering cases which were amended in the latter part of August: that is to say, an inventor who has an application pending in that division has to wait over four months for an action on his amendment. It is plain to be seen that if rejections or objections are numerous in an application for patent, necessitating repeated amendments of, or arguments in, the application, a year will slip by without material progress being made towards the allowance of the application. This is very discouraging to that class of attorneys who are endeavoring to obtain for the inventor every claim to which he is entitled, for he is harassed by his client because of the delay in the obtainment of the patent, and he is annoyed by the examiners because of the repeated rejections of the application on insufficient or improper references. The life of the attorney under such circumstances is not a "happy one."

If, as seems likely to be the case, the coming spring months add a flood of applications to the Patent Office, it is difficult to predict to what extent the work will fall in arrears. We know of no effort being made before the present Congress to obtain an increase in the force of the Patent Office examining corps, and this may be due to the well-known fact that the tendency of the national legislature at present, is towards retrenchment. Something, however, ought to be done to remedy the situation, for inventors should not be required to wait so long to obtain their patents.

PRELIMINARY EXAMINATIONS

Guarantees as to Patentability.

It is the custom of certain attorneys after making an examination to determine the patentability of an invention, to give the inventor a "certificate" as to patentability, assuring him that the possession of such certificate is clear evidence that, should an application be filed on the invention, a patent will issue. How absurd is this, and how misleading to the inventor!

In the first place, many applications for patents are rejected on reference to foreign patents, which it is impossible for attorneys to examine in making their preliminary examinations, for the reason that the only classified sets of foreign patents are in the examiners' rooms and are not open to inspection by attorneys, except by special permission of the Commissioner. Because of this, foreign patents are searched by attorneys only where a patent is sued upon.

Secondly: many applications are rejected on reference to manufacturers' catalogues and printed publications of various kinds. These are, in most instances, digested by the examiner, but such digests are usually the private property of the examiners, and are seldom permitted to be used by the attorneys.

Third: there is always a possibility that owing to defective classification, the most pertinent United States patent to the invention is not discovered in the preliminary examination. This has happened scores of times in the experience of every attorney, and there appears to be no way to prevent it.

Fourth: there may be a caveat pending on the same invention, at the time of making the preliminary examination, which caveat, being in the secret archives of the Patent Office, could not be discovered in making the search.

Fifth: there may be an application pending in the Patent Office at the time of making the search, claiming precisely the same invention comprehended in the preliminary examination. As is well known, applications for patents are, like caveats, withheld from examination by attorneys in making their searches.

It will thus be seen that in making an examination and submitting a report as to patentability, an attorney can do no more than report, that after searching the records of the United States Patent Office, in the particular class or classes to which the invention pertains, he has not found any patent anticipating the invention, and that, in his opinion, the invention is patentable; though an inventor should be warned that the search does not comprehend caveats, applications for patents, foreign patents, or printed publications, all of which sources of information are open to the Patent Office examiners exclusively, and a search in any of which might result in developing anticipations of the particular invention.

Even the Patent Office, when it issues a patent, does not guarantee the validity thereof, for the grant of a patent is simply *prima facie* evidence that the

patent is valid, which *prima facie* presumption may be rebutted by proof showing the existence of the same invention prior to the invention of the patentee.

"Certificates" of patentability are misleading, in that they have a tendency to cause people to invest their money in making application for patents, with the idea that the application is sure to go through and the invention patented; whereas there is always a possibility that the Patent Office may develop such references or set forth such reasons of rejection as to properly prevent the application being allowed.

An honest, conscientious attorney will never mislead his client by doing more than expressing an opinion, as the result of his examination, that the invention is patentable, and at the same time advising the inventor of the possibility that the Patent Office may discover through a pending caveat, an application for patent, a foreign patent, a printed publication, or a prior United States patent, a reference more pertinent than was developed by the preliminary examination.

CORRECTION.

The AGE desires to announce that the article entitled "The New Australian Patent Law," by James Hamilton, which appeared in the last issue of this paper was taken from the "Electrical Age," of New York, and through a mistake, proper credit was not given to that publication. We regret this very much, and take this opportunity to acknowledge our error.

DYEING HAIR.

The hair driers now generally used for drying damp hair are mostly so constructed that the air heated by gas, spirits or otherwise is conveyed to the hair by means of fans or ventilators, and the very hot air rapidly produces dry and undulated hair. These heating devices have, in addition to others, the drawback that the gas and spirit cause an unpleasant smell and make the air too dry, and further, that the heating cannot be sufficiently regulated. Moreover, gas cannot be used in places where there are no gasworks, but, as is frequently the case nowadays, electric-light plants.

A hair drying apparatus patented in this country obviates the above noted objections by providing an air-warmer, which, by means of electric light, heats the air so rapidly and strongly that the hair drier is at once ready for use. This air-warmer is easy to handle, causes no unpleasant smell, dries the hair thoroughly, and may be used with absolute safety. The invention consists of two concentric cylinders each provided with an orifice, a cover closing both of these cylinders at one end. A ring-shaped cover closes the space between the two cylinders at the other end, and in the ring-shaped space between the cylinders is arranged a plurality of glow-lamps. A ventilator is at the open end of the inner cylinder, and means are employed for driving this cylinder, whereby cold air is drawn into the outer cylinder, is heated by the lamps, and is drawn through the inner cylinder. Means are also provided for applying this heated air to the hair.

SCIENTIFIC

PROGRESS.

Drying Hosiery and Textiles.

A prominent British manufacturer of hosiery and textiles has devised a method of drying these articles which is considered a great improvement upon the usual process. In his invention, the drying chamber has a continuously traveling band which extends through inlet and outlet openings in the chamber and is driven by suitable gearing, so arranged with change gear wheels or ratchet mechanism that the speed of the band can be varied according to the character of the goods to be dried. The drying chamber is also supplied with a heated-air current for drying the articles and carrying away the moisture, and this current may be produced by a fan or a chimney, and the air may be heated by passing over steam coils or through a furnace, or by like means. The traveling band may pass straight through the chamber, or it may be guided around rollers so that one part is higher than another, and the goods are turned over as they fall from one level to another. Another arrangement has a number of bands traveling in opposite directions, and the goods fall from one band to another until they pass from the chamber, while the air may be directed onto the goods to be dried by paper baffles or the like. The chief advantages of this method are that it is continuous and requires a minimum of labor.

Imitation Stone.

The use of imitation stone is much more common in Europe than with us, partly because it is better known, and partly because the climate is better adapted to its employment. Some remarkable effects have been produced by this stone, and the cost is inconsiderable in comparison with that of the genuine article. A recent consular report from Germany describes its employment in the construction of an entire building. The government insurance building at Stettin, just completed, has not only its outer walls, but its interior, halls, stairways, etc., made of imitation sandstone, or beton, as it is called in that country. The main staircase is of imitation red granite, and has a polish equal to that attained on the real article: it is only by close inspection that its true nature can be detected. The skeleton or framework of the building is of common brick, faced with properly fitted pieces of imitation stone, cement being used in setting and joining the various pieces. All the blocks, window frames, sills, columns, roof, balcony and portal ornaments are so exactly cast and numbered that they fit and set in with little or no chiseling. If chiseling is necessary, it can be done as with real stone.

To obtain the effect of ordinary granite, ground black marble is used; for red granite, red marble is used. The outer shell of this imitation stone-work is from 1 to 2 inches thick, and is of fine-ground quality, while the filling is coarse. Wood forms are

used for ordinary block work; for curves, scrolls, etc., plaster of Paris molds are employed. All the pressing or stamping is done by hand. Drying takes from three to four weeks. The formula for the sandstone is: one part cement, three parts sand, and five parts ground stone. It is claimed that the imitation is fifty per cent cheaper and just as durable as the real article.

Coloring Flowers to Order.

Green carnations are the most common of artificially colored flowers; and however unnatural they appear, they are not devoid of a certain strange beauty. But horticulturists have gone much further in their search for bizarre effects, and produce purple roses, blue daisies, red violets, etc. It has been known that a large number of colors can be imparted to vegetable growths by means of artificial selection and hybridization, forced culture, etc. But although it is possible to produce countless varieties, the color of the flower can be modified, by the means described, only within certain limits. With reference to this fact, the colors of plants have been divided into two great categories, xanthic series, — yellow, yellowish, green, orange, and red—and the cyanic series,—blue, indigo, and violet. Never has a flower of the first series passed into the second, nor has the reverse taken place.

The florists, however, by proceeding on an entirely different line, have gone much further. Their method is that classic one which has long been employed in the case of violets, making them green with ammonia, white with sulphuric acid, etc. In this instance, however, it is the coloring matter of the flower itself which is modified. In the production of green carnations, the process is that of artificially introducing coloring matter into the tissues of the plant, this color being then incorporated into the petals.

The discovery of this method came about by accident. A young girl in Paris happened to pour into a vase containing white carnations, a solution with which she was painting a rose leaf green. She was amazed to see the carnations lose their white color and assume a beautiful green tint. From this to the regular manufacture of the flowers was but a short step.

Some plants, however, lend themselves more readily than others to these extraordinary transformations. The carnation, hyacinth, orange flower, gilly flower, iris, chrysanthemum and camelia are the most easily colored, and it is interesting to experiment with the many hues that can be obtained. It is only necessary to prepare a coloring solution, cut the stem of the flower and place it in the liquid. The plant absorbs the water, and little by little the solution is distributed through the tissues of the flower. A common gilly flower placed in a solution of light green analine dye is rapidly changed: at the end of twenty minutes, the white parts have become blue, the yellows green and the reds violet. Many other vegetable vagaries may be produced in the same manner.

NOTES FROM ABROAD.

A genius has invented a mechanical shaving chair, in which the customer has only to sit and put a penny in the slot to get a clean and silent shave.

* * *

A "curbstone" vendor in Ludgate Hill has introduced a novelty in the form of a Japanese cigarette holder, which may be clipped on to the brim of one's hat. The smoke is drawn through a long indiarubber tube, and the effect is distinctly original and amusing.

* * *

A sole pad is one of the latest inventions. This consists of a pad in the sole as well as in the heel of the boot for the purpose of taking up the wear and making a more sure tread and preserving the shape of the boot. The sole pad is preferably from one-sixteenth to one-eighth inch thickness of round rubber, interleaved or woven in to a mat, and inserted loosely between the inner and outer soles. The heel pad is more solid and ball like.

* * *

A new invention for ensuring dry seats on tramway-cars in wet weather has been displayed in Edinburgh. As explained by the inventor, the new arrangement is a very simple one, and can be fitted to any style of garden, tramway, or ship's deck seat. It is a wooden covering for the seat, which can be lifted in wet weather, the ordinary movement of the backrest of the seat locking it in position. When raised it forms a shelter for the back of the passenger. In dry weather the cover forms the ordinary seat.

* * *

A new patent stirrup has its pedal made so that it flies open when it receives a certain pressure and therefore releases the foot. In a general way the pedal is firm enough, and a man might ride a whole season in one of these stirrups without finding out that it is different to other stirrups: but should a fall take place, the pedal half turns, and the pressure causes it to come open. It is a simple and ingenious contrivance, and ought entirely to prevent a man who has fallen from being dragged.

* * *

Mr. John C. Dykes, who is well-known in Newcastle has recently patented a very interesting life-saving device for use in case of fire. It consists of a collapsible panel, which is adjusted to the inside of the window, and in the event of an outbreak of fire it is turned outside, where it forms a

balcony on which three or four people may stand till rescued. As a further precaution, however, it is provided with life belts, ropes, and pulleys, by which those on the platform can, should their situation become critical, lower themselves to the ground. The apparatus has been already tested and proved entirely efficient at Portsmouth, and Mr. Dykes hopes to give a demonstration of its uses in Newcastle shortly.

* * *

A new process for hardening iron has been developed by two Prussian inventors. It consists of adding to iron a small percentage of phosphorous combined with a large amount of carbon. The iron is heated in a tempering powder consisting of bone dust, to which are added 300 grains yellow prussiate, 550 grains cyanide of potassium, and 400 grains of phosphorus. The receptacle is closed and luted with clay, and raised to a clear red or white heat. The material treated is then taken out and plunged, while still hot, into a warm bath. It is claimed that this will harden the surface of a piece of iron weighing 400 lbs, to a depth of about 0.04 in., and that the iron can neither be cut nor chipped by the best steel used, and that it can be readily welded.

* * *

A motor tyre possessing not only the merit of novelty, but also possibly the elements of practical success, has been invented by Mr. William Meadows, of Brixton. The inventor claims that it cannot be punctured, that it is adaptable to even the heaviest motor-bus, and that it can be made at very much less cost than the present tyres. The new tyre has two air tubes side by side in the steel rim. The outer tread is made in sections of about 12 or more, the substance being hard papier mache. Each of these tread shields is attached to the rim by means of a bolt, and is free to move up and down, but not laterally. When all the tread shields are fixed they form a sort of armour plate round the two air tubes, protecting them from puncture, but at the same time they present a resilient surface to the road. By means of links between each shield tread, side slip is averted or minimised. The new wheel has yet to be tested in actual practice, and it remains to be seen whether the constant motion of the tread shields will cause attrition of the tubes or "nipping" on the edges of the rim. The inventor claims that the hard flat surface of his wheel will do away in a great degree with the dust nuisance caused by the suction of rubber-faced tyres.—*Patents.*

PATENTS

Send Your Business Direct to Washington ∴ ∴
∴ ∴ Saves Time and Insures Better Service.

Caveats,
Trade Marks,
Copyrights
and
Designs.

My office is close to U. S. Patent Office. FREE report as to patentability made. Personal attention given—TWENTY-FOUR YEARS PRACTICE. Book "How to Obtain Patents," etc., sent free. Patents procured through E. G. Siggers receive special notice, without charge, in the—

INVENTIVE AGE

Illustrated Monthly—Seventeenth Year.
Terms, \$1.00 a Year.

E. G. SIGGERS, 918 F STREET, N. W.,
WASHINGTON, D. C.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy; twenty copies \$1.50.—Please give correct data in ordering.—Address,
THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

Issued November 22, 1904.

MECHANICAL PATENTS.

Acid. Preparing dialkybarbituric.....2 pats. M. Engelmann
Agricultural implement.....H. H. Herrod, Jr
Air brake connection pipe joint.....S. Feust
Air brake controlling apparatus.....W. J. Schlacks
Air brake safety device.....C. E. Cozzens
Animal trap.....W. H. Harnden
Ash can.....J. H. Christer
Autocar dust guard.....W. H. Brown
Automatic gate.....M. K. Lewis
Automatic lubricator.....J. Farley
Back and head rest. Invalid.....L. R. White
Barium hydrate. Manufacture of.....F. Jahn
Barrels, &c. False partition for.....E. E. Seacrist
Battery charging apparatus.....H. G. Pape
Bearing. Carriage.....L. Myers
Bearing. Roller.....L. Villatte
Beater or movement apparatus.....A. Fornander
Bed. Couch.....R. J. Wagner
Bed. Invalid.....J. W. Crigler
Belt cutter, punch, and link clencher Combined.....L. Goldberger
Biscuit coating machine. Sandwich.....G. S. Baker
Blotter.....D. Sarason
Bodkin.....A. W. & I. R. Smith
Boilers, &c. Spring clamp or holder for lids or covers of pudding.....D. Macfarlane
Book Manifold.....A. Levison
Boot or shoe filler or form.....A. Lewis
Boring bar.....J. Riddell
Bottle.....G. P. Dence
Bottle filling machine.....J. H. W. Ortmann et al
Bottle. Non refillable.....W. B. Hargan
Bottle. Non refillable.....J. F. Spitt
Bottle stopper.....G. W. Wheeler
Bottle stopper.....M. Elfstrand
Box blank making machine.....E. E. Flora
Brake.....W. T. Stewart
Brake rigging.....J. M. Davies, Jr
Brewing.....J. Schneible
Brick cement and glaze. Fire.....G. M. Pressel et al
Brick or tile cutting machine.....W. R. Cunningham
Brick. Paving.....A. F. Knobloch
Brick. Refractory.....W. F. Berger
Broom fountain attachment.....J. W. Shroyer
Brush.....B. A. Capehart
Brush drip.....W. Dunbar
Brush machine. Rotary.....R. Y. Yeomans
Buckle.....A. Steiner
Buggy boot spring.....W. R. Bradford
Building block forming presses. Lowering stand for.....G. H. Denton
Building blocks from material including hydraulic cement. Manufacturing.....H. Warden
Building structure.....L. P. Hazen
Burglar alarm. Electric.....A. Getto
Butcher's stay.....K. W. E. Baumgart et al
Button.....S. M. Merrill
Button.....J. V. Pilcher
Button. Collar.....H. T. Murphy
Cabinet.....C. S. Bigelow et al
Cabinet maker's clamp.....H. Jorgensen
Cabinet. Sanitary.....S. L. Stuart
Calculating machine.....J. G. Zollman
Calendar roll.....E. R. Beck
Camera. Folding pocket and focal plane shutter.....J. S. Wright
Camping outfit.....D. T. Abercrombie
Can body forming and side seam soldering machine. Combined.....H. B. Williams et al
Can body machine. Locked seam.....J. H. McElroy
Can capping machine.....C. B. McDonald
Car.....F. E. Hobbs
Car body and truck.....E. S. Bennett
Car coupling.....C. F. Christy
Car coupling.....W. F. Wendt
Car coupling.....P. Hien
Car door lock. Vestibule.....A. W. Zimmerman
Car draft rigging. Railway.....W. H. Miner
Car fender. Street.....J. M. Wilderman
Car for single rail elevated railways.....F. B. Behr
Car. Miner's.....W. J. Neilson
Car replacer.....H. J. Campbell
Car replacer.....D. B. Ketts
Car seat.....F. K. Fassett
Car step. Folding.....J. A. Kratz
Car swinging doors. Actuating device for freight.....D. A. Hitchcock
Car underframing 2 pats.....H. C. Williams et al
Car underframing. Railway.....G. I. King
Cars. Crane attachment for loading or unloading.....J. Leighton et al
Carbureter. Explosive engine.....G. F. Swain
Carbureter. Hydrocarbon engine.....G. W. Burton et al
Carbureting means. Air.....W. H. & G. E. Russell
Card clothing strickle.....H. L. Miller
Carding engine drawing off device.....D. S. Eastwood
Carriage top bow spring protector.....C. H. Sooy
Cash register with distant indication.....W. H. Muzzy
Caster.....A. C. Stebbins
Cement. Burning.....M. Williams
Cement kiln. Rotary.....T. A. Edison
Centrifugal machine.....A. C. Van Kirk
Centrifugal separator.....J. J. Berrigan
Chain connecting device.....C. E. Smith
Check, record book and binder. Bank.....M. A. Howe
Chimney soot collector.....C. Prangemeier
Chipping machine.....F. B. Philbrick
Churn.....S. F. McClane
Circuit controller.....A. D. Scott
Circuit controller. Electromagnetic.....E. W. Vogel et al
Clamping device.....L. P. Halladay

Clamping device.....E. V. Boddy
Clothes line support.....H. J. Meiz
Clothes pin.....A. C. French
Clutch operating mechanism for cut offs.....P. B. Clarke
Clutch for coupling. Friction.....H. D. Loria
Coat adjuster.....J. W. Beam
Coating machine.....C. B. Wisner
Coffee machine.....S. Sternau et al
Coin spring.....T. A. Shea
Coin controlled slot or vending machine and contesting mechanism therefor.....L. J. Disser
Column. Wood.....J. W. Hartmann
Columns, &c. Binding device for.....J. W. Hartmann
Compound engine.....G. W. Satchiffe
Compressor.....J. Shipway
Compressors, &c. Regulator for.....R. Conrad
Concrete wall molding apparatus.....2 pats.....H. L. Shute et al
Condenser. Variable air gap.....F. F. Strong
Controller.....E. Schattner
Convertible chair.....2 pats.....E. L. Thompson
Cooker and presser. Steam.....A. J. Ketelsen
Cooling heated surfaces. Means for.....J. H. Sager et al
Copper or like metals from their ores. Separating.....P. & A. Weiler
Corn protector.....J. Dejen
Corrugating apparatus.....J. A. McConnell
Cotton chopper.....T. J. Hollingsworth
Cotton chopper.....J. A. Hogue
Cotton picking machine.....G. A. Lowry
Cotton picking machine.....J. F. O'Shaughnessy
Cotton press.....A. D. Thomas
Coupling.....J. & J. O. Timms
Covering. Weatherproof.....L. C. Rugen et al
Coverings. Apparatus for making non-conducting.....3 pats.....J. A. McConnell
Coverings. Making non-conducting.....J. A. McConnell
Crate. Banna.....E. E. & M. B. Hugoboom
Cream separator regulating device.....J. J. Berrigan
Creamer. Centrifugal.....2 pats.....F. J. Arend
Cultivator.....A. H. Kopperud
Curb.....G. S. Du Rossat
Curb, gutter, and drain block.....A. Austin
Current distribution system. Alternating.....A. E. W. Meissner
Current motor. Alternating.....E. J. Beig
Damper regulator.....J. D. Bowne
Decoy.....W. Riggs
Decoy duck.....W. Riggs
Desk. Wall.....W. E. Burks
Detachable handle.....W. I. Lyon
Die.....G. Keppler
Die press.....A. W. & A. H. Roovers
Door fastener. Sliding.....A. W. Zimmerman
Door. Sidewalk.....E. Johnson
Doubling and twisting machine. Yarn.....B. S. Allen
Dowel pin making machine.....C. F. Stewart
Draft equalizer.....W. J. Robinson
Draft equalizer.....N. N. Egge
Drawing and twisting or spinning worsted or other yarns. Mechanism for.....S. Sykes
Dredge. Chain sand.....R. Smith
Drier.....T. Andrews et al
Drying machine.....J. K. Proctor et al
Drop light.....V. A. Menuez
Drum.....E. T. Turney
Drum snare strainer.....E. T. Turney
Dust separator and collector.....C. McVeety
Dye. Blue anthracene.....M. Kugel
Dye. Dark blue sulfur.....A. L. Laska
Dye. Green anthracene.....M. Kugel
Dye. Green blue anthraquinone.....M. Kugel
Dyeing, &c. Apparatus for.....A. Fankhauser et al
Electric circuit controlling switch.....M. W. Day
Electric controller.....H. C. Smith et al
Electric current generating apparatus.....C. S. Bradley
Electric furnace.....A. C. Higgins
Electric heater.....E. P. Weggen
Electric machinery. Dynamo.....H. G. Keist
Electric machinery. Dynamo.....H. G. Keist
Electric machines. Regulating dynamo.....W. L. Merrill
Electric motor. Alternating current.....B. G. Lamme
Electric time switch.....C. S. Moore
Electric transmission system.....C. G. & E. J. Burke
Electrical energy. Converting fuel energy into.....H. Jone
Electrical register and system therefor.....L. A. Schmidt
Electromagnetic brake.....2 pats.....L. C. Lowry
Elevator safety stop.....W. T. Robinson et al
Engine bushing. Tandem compound.....J. Metzger
Engine speed regulator. Explosive.....J. S. Losch
Engine stop.....J. H. Cary
Engines. Incandescent igniter for explosive.....P. J. Shouvlia
Eraser.....F. W. Warren
Evaporating apparatus. Vacuum.....C. Ordway
Evening and grading machine.....E. P. Nichols
Exercising device.....R. Patterson
Exercising machine.....F. Bitter
Explosive engine.....C. & W. Hibbard
Extension table.....J. Mitchell
Epeglases.....L. Kirsch
Fabric coating machine.....J. H. Shugg
Fanning mill.....L. T. Larson
Farm gate.....W. B. Miller
Fastener or holding device.....G. A. Danielson
Fastening device.....J. F. Werle
Feed water regulator.....W. A. Garrigus
Feed water regulator. Steam boiler.....J. Woods et al
Feeder. Automatic boiler.....N. F. Roadhouse
Fence.....J. A. Le Hew
Fence.....H. Meinecke

Fence post.....E. Bruley
Fence post.....A. F. Weissinger
Fertilizer distributor.....T. J. Waddell
File. Paper.....C. E. Shell
File. Paper.....M. G. Bristow
Filter.....O. Mehnert et al
Filter. Oil.....R. K. Williams
Fire escape.....M. A. Kierman
Fire escape.....O. B. Howe
Fire extinguishing sprinkler. Automatic.....G. Mills
Fire shield for proscenium arch openings of theaters.....H. M. Smith
Fireproof covering for columns or pillars.....S. Gollick
Fireproof flooring.....D. W. Boyd
Fish hook.....W. E. Koch
Fish trap.....A. L. Brooks
Fluid tank indicator.....F. A. Rantz et al
Flushing device.....A. C. Davidson
Forces due to inertia and weight of valve-gear. Device for relieving.....L. D. Lovekin
Fruit picker.....J. W. Buchanan
Furnace reversing valve.....S. M. Guss
Furniture. Article of.....G. W. Bent
Fuse. Projectile.....J. B. Semple
Galvanic element or battery.....P. Brand
Game register.....F. H. Smith
Garment supporter.....M. P. Zindorf
Gas burner. Atmospheric.....F. Gross
Gas generator.....H. Weigle
Gas generator. Acetylene.....E. R. Cook
Gas meter protective valve coupling.....F. L. Finnegan
Gas purifier. Centrifugal.....A. Steinbart
Gas purifier. Centrifugal.....F. V. Matton
Gasoline light generating machine.....T. A. Davis
Gate.....G. F. Moors
Gear. Change speed.....A. Soames et al
Gear. Drive.....A. Mills
Gear mechanism for machine tools. Change.....W. T. S. Johnson
Gin rib.....L. W. Ellman
Glass. Chipping.....P. J. Handel
Glass grinding machine.....C. L. Goehring et al
Glass manufacturing apparatus.....A. R. Wilson et al
Glassware. Machine for making hollow.....G. C. Pyle
Globe. Collapsible.....R. D. Gallagher, Jr
Goggles. Motor.....H. Newbold
Gold from ores. Extracting.....H. R. Cassel
Governor. Explosive engine.....C. & W. Hibbard
Grain binder attachment.....H. C. Raesner
Grain drill distributor.....F. K. Packham
Grain separator and dust collector. Combined.....E. R. Draver
Grate.....E. R. Cahoon
Grate operating appliance.....G. A. Ellis
Grease cup.....F. H. Bogart
Grinding machine spout.....C. H. Norton
Hackling machine for flax, &c.....R. H. S. Reade et al
Hammer. Pneumatic.....2 pats.....C. J. Smith
Hand brake.....H. B. Vickers
Hat pressing machine attachment.....W. H. Kendall
Hatches, trap doors, &c. Apparatus for operating armored.....W. B. Cowles
Hay or grain loader or unloader.....W. Kouns
Hay press.....E. A. Smith
Hay rake and elevator.....G. W. Irish et al
Head gate. Floating weir.....M. S. Hart et al
Heater and mixing faucet.....L. M. Hooper
High frequency apparatus. Portable.....2 pats.....F. F. Strong
Hoe.....J. J. Coston
Honey or section boxes from hives. Apparatus for removing.....J. N. M. de Valdivieso y Martinez de Valdivieso
Horse detacher.....W. T. Dunbar
Hose supporter.....E. C. Tooker et al
Hydraulic press.....O. Philipp et al
Index and receptacle. Card.....F. D. Belknap
Index. Map.....E. Heubach
Inking mechanism.....C. P. Byrd
Insulated rail joint.....G. A. Weber
Insulating support for electric third rails.....W. H. Barnard
Insulator support.....E. H. Fairbanks
Journal bearing.....H. V. Kuhlman
Journal box.....A. B. Gardella
Journal box. Dust proof.....J. A. Kennedy
Journal lubricating device.....J. J. Moss
Keir Vomiting.....E. D. Jefferson
Knitting machine cam device. Lamb.....W. Bach
Lace or strap fastener. Shoe.....L. F. Ramsey
Ladder elevator. Self-supporting and extension.....E. Maxey
Ladder. Portable.....M. Tetzlaff
Lamp base. Incandescent.....A. Swan
Lamp. Electric arc.....T. L. Carbone
Lamp. Miner's safety.....R. C. Simpson
Lamp or gas light holder. Movable incandescent.....J. H. Stanton
Lamp socket. Plural.....reissue.....R. B. Benjamin
Lamps. Rosette for suspending or supporting incandescent.....H. E. Rossiter
Land roller and harrow. Combined.....J. H. Massmann
Latch. Door.....R. F. Pinegar
Lathe. Automatic.....L. T. Kline
Leather. Treating.....P. Magnus
Lens combination for producing virtual images.....M. von Rohr
Letter box.....J. N. Nutt
Level. Adjustable.....G. H. Whitehouse
Limb. Artificial.....L. A. Weissler
Liquids. Heating.....A. Waldbaur
Logging sled draft mechanism.....H. B. Frey
Loom.....W. F. Draper
Loom.....J. H. Cobb
Loom.....E. S. Draper
Loom. Lappet.....J. C. Brooks
Loom lay downhold.....E. S. Wood
Loom let off mechanism.....J. T. Meats
Loom picker stick motion.....G. Bolsvert
Loom shuttle.....J. T. Gregory et al
Loom shuttle check.....F. Ott

Loom shuttle locking means.....M. L. Stone
Loom temple.....A. Meunier
Loom warp stop motion.....J. T. Meats
Machine element.....C. D. Rice
Mail bag deliverer.....W. D. Briggs
Mail box.....J. H. Knope
Mail box, &c.....M. B. & H. S. Mills
Mandrel. Expanding lathe.....G. R. Rich
Mandrels. Machine for grooving wire.....M. Stadler
Manicure implement.....F. B. La May
Mat.....E. S. Norton et al
Match scratching device.....B. C. Cole
Metallic fabric.....E. A. Bedient
Metals from their ores. Extracting.....F. H. Long
Microtome.....C. F. Dieckmann
Milk can lid or cover.....J. J. Snigo
Milk receptable lock.....W. Goodchild
Milkling device.....V. O. Johnson
Mixer.....G. Thom
Moistener. Envelop, &c.....W. Holt
Molding apparatus.....C. P. Melvin
Molding machine.....F. W. Hall
Molding machine. Centrifugal.....J. C. F. Lafeuille
Mop or wiper.....H. O. Thomas
Mortising machine.....D. W. Cole
Motor case and gear.....L. S. Pfouts
Motor frame.....T. C. Dunlap
Motor vaporizer. Hydrocarbon.....A. Wassmann
Music leaf turner.....J. J. Clarke
Musical instrument.....H. J. Isbell
Musical instrument.....F. O. Gutman
Musical instrument devices. Automatic spring winding mechanism for mechanical.....H. E. Sharps et al
Musical instrument tremolo attachment.....J. A. Burchit
Nail blanks. Machine for swinging heads on.....E. Perkins
Naval architecture.....G. F. R. Blochmann
Nut, &c. mold.....J. Bone et al
Oil burner.....R. Meldrum
Oil burner.....A. J. O'Brien
Oil burner. Blue flame.....W. R. Jeavons
Oil can.....J. E. Albers
Oleo-resin from the peel of citrus fruits. Extracting.....E. J. Sheehan
Oleo-resinous product from citrus fruits.....E. J. Sheehan
Ordinance.....W. H. Bevans
Oscillating motor.....T. M. Foote
Paper making apparatus.....R. Binns
Paper pulp. Production of.....I. Kitsee
Paper shaping machine.....C. H. Dunning
Paper trimming or cutting tool.....H. S. Williams
Paving block or set for use along tramway rails.....J. G. Wolf
Pen. Fountain.....A. R. Leib
Penholder.....W. H. Reed
Pencil.....J. D. R. Lamson
Pencil. Lead.....A. P. Jacob
Pencil sharpener.....F. P. Lovejoy
Phenol compound.....C. C. Gotsch
Phonograph repeating attachment.....E. L. Aiken
Photographic printing frame.....W. H. Smith et al
Photographic printing frame support.....J. S. Cummings
Photographic shutter.....J. S. Wright
Pick. Miner's.....W. Ashert
Picker sticks. Adjustable back stop for.....O. Benson
Pictures. Producing invisible.....E. Dohrenz
Pipe covering and making same.....2 pats.....J. A. McConnell
Pipe coverings. Apparatus for molding.....J. A. McConnell
Pipe expanding and flanging machine. Metal.....L. D. Lovekin
Pipe finishing tool. Flanged.....L. D. Lovekin
Pipe threader.....D. Edwins
Pipe wrench and cutter. Double acting.....G. E. R. Rothenbuecher
Plane.....J. J. Muehl
Plastic composition.....R. McCarrel
Plastic material molding apparatus.....J. A. McConnell
Plate or saucer holder.....J. E. Twichell
Plowshare sharpener.....L. J. Cox
Plowshares. Manufacture of landsides for.....J. B. Jarmin
Powder charger.....F. Lippart et al
Powder transmitting and reversing mechanism.....R. Symmonds
Precious metal from ores. Apparatus for extracting.....J. J. Berrigan
Precious metal from ores. Extracting.....J. J. Berrigan
Precious stones. Apparatus for cutting and polishing.....F. R. Kneip
Press or machine for making saggars, &c.....E. W. Leigh
Printing press sheet delivery apparatus. Cylinder.....W. S. Huson
Pruning hook.....C. Gregory
Pulp beating machine.....L. A. Thomas
Pulp mills. Neutralizing liquids effluent from wood.....C. W. Doughty
Pulp web and spool.....R. Binns
Pump. Air.....G. L. Bennett
Pump governor.....R. Conrad
Punch. Ticket.....C. W. Kuen
Punching bag apparatus.....C. F. Held
Puzzle.....E. L. Young
Pyrotechnical compound.....K. Hufnagel
Radiator and ventilator. Heat.....J. J. Kulage
Rail fastener. Guard.....D. F. Vaughan
Rail joint.....A. L. Stanford
Rail joint.....M. Barschall
Rail joint.....W. E. Palmer
Railway. Coasting or gravity.....G. A. De Baum
Railway crossing.....W. J. Bazarek
Railway signal system. Automatic.....J. W. Shattuck
Railway signal apparatus.....J. T. Cade
Railway signaling. Electric circuits and apparatus for.....H. W. Spang
Railway signaling system. Electric.....E. Sera et al
Railway switch.....S. F. Kates
Railway switch. Elevated.....J. Hughes

Railway tie..... F. W. Mettler
 Railway tie..... A. A. Kappenhagen
 Railway tie..... C. J. Swink
 Railway track switch. Electrically operated..... G. H. Fretts
 Range boilers. Gas heating attachment for..... H. G. Schramm
 Ratchet mechanism..... C. F. Dieckmann
 Razor. Safety..... A. E. Muller
 Reflector..... E. L. Zalinski
 Refrigerating machines. Absorber for ammonia absorption..... R. J. Cracknell
 Regulator..... R. Conrader
 Relay. Resonance..... P. O. Pedersen
 Retort..... S. L. Hague
 Rivet..... G. L. Miller
 Rivet, bolt, &c. mold..... J. Bone et al
 Rocking horse. Traveling..... A. Hettel
 Rod bending machine..... W. J. Kurtz
 Roller mill feed mechanism..... J. J. Gerard
 Roofing or flooring. Flexible L. C. Rugen et al
 Roost. Poultry..... F. C. Jahnke
 Rotary engine..... V. Behringer
 Rotary engine..... J. W. Pickel
 Rotary engine..... F. F. Norden
 Rotary motor..... A. A. Ewald
 Safe or vault..... S. L. Smith
 Sandal..... B. R. Bonney
 Sash fastener..... J. H. Clements
 Sash fastener and lift..... W. W. Bauman
 Sash lock..... C. Hearnshaw
 Sash lock. Window..... J. C. Deggiu
 Sash window..... C. M. Rhodes
 Saw carriage for cutting bevel boards..... A. W. Tait
 Saw guide. Gang..... C. A. Norlin
 Sawmill..... R. L. Neubert
 Scoop. Measuring..... F. S. Bishop
 Screw holder and driver..... C. Lusted, Sr
 Seal. Bottle..... 2 pats. W. E. Heath
 Seed cleaning machine. Vegetable J. B. Green
 Separators. Discharge regulating device for..... J. J. Berrigan
 Sewer cleaning machine..... P. J. Healey
 Sewing machine buttonhole cutter..... A. Jude
 Sewing machine shuttle..... H. A. Dodge
 Sewing machine thread clamp. Wax thread..... H. A. Dodge
 Shade and curtain holder. Combined..... J. O. Kridelbaugh
 Shaft coupling..... C. A. Backstrom
 Shaft with changeable speed. Counter..... G. Langen
 Shaping machine..... reissue. J. C. Potter et al
 Shelf. Library..... N. B. Parsons
 Shelf. Library..... N. B. Parsons et al
 Ship's signal..... F. W. Wood
 Shoulder strap holder..... R. Morris
 Shrapnel..... P. D. Van Essen
 Shuttle..... J. E. Welton
 Shuttle. Self threading..... W. L. Hall
 Sifter. Ash..... W. T. Whiteway
 Sign..... R. W. Clark
 Sign. Display..... R. W. Clark
 Signaling apparatus. Electrical..... S. Cabot
 Skirt and undergarment adjuster and hose-supporter. Combined..... F. E. Moody
 Skiving machine. Band knife..... G. O. Jenkins
 Slicer for bread, &c..... I. Goldstein
 Sluice box. Rotary..... J. L. Porter
 Snap. Harness..... J. W. Lawhead
 Snow plow..... E. Bowman
 Spark gap. Rotary..... F. F. Strong
 Speed and reversing mechanism. Variable..... F. O. Farwell
 Spike puller..... H. O. Hood
 Spindles. Bobbin clutching means for rotatable..... W. E. Allen
 Spindles. Bobbin retaining means for rotatable..... F. E. Norcross
 Spinning machine..... D. Alexander et al
 Spinning spindle..... J. E. Prest
 Spool rolling and finishing apparatus R. Binn
 Spray bath..... F. Burger et al
 Spring end plate..... J. Carroll
 Spring wheel..... E. Einfeldt
 Stack construction..... N. B. Parsons
 Stack cover. Hay..... C. B. Thummel
 Stamp mill tappet..... W. E. Ingram
 Stay. Coat..... F. C. Klipstein
 Steam engine..... F. Egge
 Steam engine..... A. Langlais
 Stereoscopic printing device..... F. A. Brownell
 Stocking supporter..... C. J. Higley
 Stone or other material. Means and apparatus for use in cutting or dressing or polishing..... F. M. McLarty
 Stove. Gas burning fireplace..... H. A. S. Howarth
 Strainer. Jelly..... A. H. Williams
 Street sweeper..... A. Larson
 Stretcher..... R. C. Smith
 Surgical cushions, &c. Cap for air valves for..... C. W. Meinecke
 Suspenders..... W. Freeman
 Swinging gate..... D. H. Iseminger
 Switch operating device..... H. M. Cosey
 Switch point locking mechanism..... J. Maher et al
 Table..... W. H. Gibbs
 Table puller..... J. M. Ranck, Sr
 Tap for barrels, casks, &c..... R. H. Salmons
 Tap or thread cutter..... T. Dollard
 Targets. Apparatus for signaling the value of shots on..... T. Murray
 Telegraph pole..... W. Schutz
 Telegraph. Wireless..... R. L. de Moura
 Telephone system..... G. M. Crockett
 Telephone. Wireless..... R. L. de Moura
 Theater chair..... E. H. Wiersching et al
 Thill coupling..... G. E. Ciow
 Threshing and cleaning apparatus. Seed cotton..... H. H. Kelly
 Ticket. Railway..... L. N. Lyon et al
 Tide and wave motor..... G. W. Hazel
 Tile construction. Illuminating..... P. H. Jackson
 Time lock..... H. M. Dalton
 Time of employees. Machine for keeping the..... T. Dow
 Tire for vehicle wheels. Pneumatic..... A. R. Karremann et al
 Tire friction tread. Vehicle..... L. P. Faison
 Tire. Pneumatic..... F. R. Keith
 Tire. Rubber..... J. F. Byers
 Tobacco pipe..... C. H. Rideout
 Tobacco pipe..... W. K. Horn
 Tongue support..... M. S. Evans
 Trace carrier. Harness..... J. Hebel

Traction increasing device..... 2 pats. R. C. Lowry
 Traction wheel..... E. Einfeldt
 Traveling bag, case, &c..... C. H. Anderson
 Trellis. Vine..... J. Seelhorst, Jr
 Trolley..... E. L. Naret et al
 Trolley..... J. B. Eiker et al
 Trolley..... W. S. Stockton
 Trolley. Overhead..... J. G. Johnston
 Trolley pole..... W. R. Harmon
 Trolley wheel..... M. L. Mowry
 Truck bolster. Car..... G. G. Floyd
 Trunk and desk. Combined..... T. McCabe, Jr
 Truss. Cardiac..... E. Abbe
 Tube or spool making apparatus..... R. Binn
 Tubes, pipes, &c. Apparatus for cleaning..... F. Nowotny
 Tuning hammer..... W. H. Porter
 Tuning peg. Stringed instrument..... F. W. Becker
 Turbine..... C. N. Schottmuller
 Turbine..... C. A. Parson
 Type distributing apparatus..... L. K. Johnson
 Typewriter cylinder scale..... O. C. Kavey
 Typewriters, &c. Mechanism for locking the key levers of..... W. F. Helmond
 Typewriting machine..... E. B. Cram
 Typewriting machine..... J. D. White
 Typewriting machine..... G. M. Kitzmiller
 Valve. Air relief..... J. T. Lewis
 Valve mechanism..... E. Thomson et al
 Valve mechanism for controlling flow of liquids..... A. Priestman
 Valve operating device for blowing engines. Electrical..... S. T. Wellman
 Valve. Regulating..... J. Johnson
 Variable speed motor..... M. Pfatscher
 Vault..... T. H. Given et al
 Vegetable cutter..... J. Valk
 Vehicle body corner..... W. B. C. Hershey
 Vehicle brake. Automatic..... C. A. Harris
 Vehicle. Traction..... A. S. Kaplan
 Vehicle train..... C. Renard
 Vehicle wheel..... W. B. Keighley
 Vehicle wheel..... J. Leffer
 Vermin trap..... G. Andrus
 Vessels. Apparatus for raising sunken..... M. Lacey
 Violin chin and shoulder rest combined..... F. W. Becke
 Violin chin rest..... F. W. Becke
 Wagon frame. Metallic..... E. Einfeldt
 Wagon reach..... J. Simpson
 Water elevating apparatus..... A. Sundh
 Water hoisting apparatus..... W. H. Moody
 Water motor..... J. F. Myser
 Water purifier and elevator..... J. W. Carpenter
 Water purifying apparatus..... J. C. W. Greth
 Water tube boiler..... H. L. Wilson
 Welding or forging metallic rings or links. Machine for..... J. Giriot
 Well jack..... W. E. A. Pipher
 Well sinking apparatus..... M. T. Chapman
 Wheels, cranks, &c. Fastening for..... J. V. Pugh
 Whip. Drover's..... H. Brown
 Wind motor..... A. Wedrick
 Window..... W. B. Culvar
 Window..... A. G. Steinbrenner
 Window closer. Automatic..... H. C. Smith
 Window frame and sash. Metallic..... J. Bogenberger
 Window ventilator..... A. U. Chase
 Wire cutter and pliers. Combined..... J. W. Calhoun
 Wire stretcher..... P. Epperson
 Wire weaving loom..... R. H. Bliss
 Wrench..... F. Hachmann
 Wrench..... L. W. Siple
 Zinc. Apparatus for the extraction of..... 2 pats. C. S. Brand

DESIGNS.

Badge..... G. L. Gillespie
 Badge or similar article..... H. L. Lang
 Bottle top. Pepper or salt..... C. V. Helmschmed
 Candelabrum..... S. W. Babbitt
 Jewel casket or similar article..... E. L. Brainard
 Lamp shade. Electric..... H. D'Olier, Jr
 Oven plate..... J. Magee
 Pipe..... W. B. Porter
 Shears..... W. F. Hobbs
 Spoon, fork, or similar article..... P. Margolis et al
 Spoon or similar article..... W. C. Codman
 Spoons, forks, or similar articles. Handle for..... W. C. Codman
 Stove plates or similar articles. Rim for..... J. Magee
 Trimming..... A. M. Weber

Issued November 29, 1904.

MECHANICAL PATENTS

Accumulator..... H. A. Brooks
 Alarm lock..... G. A. Moser
 Alcohol. Making sesquiterpene..... M. Kerschbaum
 Ammonia. Making..... A. Frank
 Arch abutment..... M. Moller
 Arcs. Means for counteracting R. E. Hellmund
 Automatic lubricator..... M. P. Elgen
 Automatic switch..... E. H. Saunders
 Automobile door and seat lock mechanism..... E. L. Egermayer
 Automobile headlight cover..... H. S. Tompkins
 Automobile transmission gear..... W. Simkins
 Automobiles, &c. Speed controlling mechanism for..... R. H. Hassler
 Axle truss rod. Vehicle..... N. Halvorsen
 Axles into car wheels. Hydraulic press for forcing..... A. Nolte
 Bag turning machine..... C. F. Sparks
 Bag turning machine. Pneumatic..... J. Iverson
 Bags. Turing..... J. Iverson
 Basket making machine..... O. Schleicher
 Bath apparatus..... C. E. Wallen
 Battery plates. Protective coating for storage..... A. Meygret
 Battery plates. Protective coating or covering for storage..... A. Meygret
 Beam presser..... H. Parsons
 Beams, interior cornices, or the like. Construction of false..... W. Nielson
 Bearing. Thrust..... W. M. Holmes
 Belt tightener..... F. P. Burkhardt

Bicycle..... C. E. Pierce
 Binder..... E. L. Shipman
 Binder. Temporary..... J. A. Greene
 Blind adjuster..... I. L. Garside
 Blouse. Boy's..... S. Hirsch
 Boiler cooling device. Water tube..... E. Mettler
 Boiler furnace..... H. L. Meyer
 Boiler tube cleaner..... F. Mettler
 Bolster..... S. P. Bush
 Bolster standard..... N. Halvorsen
 Book leaves or sections. Machine for collating or gathering..... A. Hess
 Book manipulator. Manifold sales..... A. R. Turk
 Book. Memorandum..... R. A. Wallace
 Book smashing machine..... C. Seybold
 Book stack..... B. R. Green et al
 Boot or shoe. Button..... H. C. Jenney
 Boot or shoe former..... J. F. Collins
 Bottle..... H. Vincent
 Bottle..... D. H. Manahan
 Bottle card holder..... W. Rinker
 Bottle. Non refillable..... G. Anger et al
 Boxes, &c. Implement for opening T J Lynch
 Brick. Perforated radial..... D. D. Elder, Jr
 Brooder..... W. Ohrmann
 Brush. Fountain tooth..... A. Hosmer
 Bucket. Clam shell..... J. McMyler
 Buffering machine..... W. A. Parmenter
 Buggy wrench..... W. S. Mitts
 Building block..... A. C. Mather et al
 Building block mold..... J. P. Sherer
 Building block mold..... I. L. Landis
 Building block molding machine J. W. Jackson
 Building material. Artificiel..... A. Seigle
 Burling or perching roll..... A. L. Robertshaw
 Bustle..... E. Colquhoun
 Cableway conveyer. Electrical C. Messick, Jr
 Calcining furnace..... W. A. Koneman
 Calculating machine..... B. H. Saunders
 Camera. Panoramic..... W. J. Johnston
 Can closure..... M. Levine
 Cans without the use of solder. Means for securing valves to..... W. F. Brodick
 Cap..... E. S. Rogers
 Car body bolster..... J. Green
 Car bolster..... J. Green
 Car bolster. Railway reissue..... H. W. Frost
 Car. Coal, ore, or ballast..... G. E. Simonton
 Car coupling..... G. P. Ritter
 Car coupling..... O. S. Pulliam
 Car coupling..... W. S. Kneeder
 Car door lock..... E. H. Roy
 Car draft rigging carrier..... 2 pats. O. S. Pulliam
 Car draft rigging. Continuous..... A. Johnson
 Car dumping apparatus..... H. H. Bighouse
 Car fender..... L. Ridout
 Car. Observation passenger..... H. Romfunder
 Car part..... E. I. Dodds
 Car. Railway..... C. Vanderbilt
 Car replacer..... J. W. Pettet
 Carpenter's device..... H. F. Volberding
 Cartridge belt or bandoleer..... A. Mills
 Casket catch..... L. Greensides
 Centrifugal machine..... B. Cohen
 Chart. Foldable and portable..... J. F. Hosmer
 Checkrein guide loop..... E. Van Dyck
 Cheek distender..... J. G. Crockett
 Cheese cutter..... B. Blood
 Churn..... B. R. Br an
 Clothes line holder and tightener..... C. W. Ott
 Clutch..... L. Seibt et al
 Clutch..... C. C. Keyser
 Clutch mechanism..... E. R. Dickey
 Coffee roaster..... E. T. Shortt
 Colter..... J. P. Hey
 Combustion. Producing complete..... H. C. Caldwell
 Commode..... M. B. Smythe
 Concentrating machine..... 2 pats. A. H. Stebbins
 Concentrator..... F. T. Le Strange
 Cooking apparatus. Gas..... L. Schone
 Cooling board. Undertaker's..... L. E. Fosdick
 Cork extractor..... L. E. Strohacker
 Corset form..... T. F. Somers
 Cot or pliable bedstead..... I. Hirsch
 Cotton picker..... W. W. Hoskins
 Counter..... C. H. Veeder
 Coupling..... J. W. Buller
 Coupling..... J. Prestele et al
 Cover and fastening for cases, &c. Reversible..... M. J. Bartlett
 Crate form..... E. Decow et al
 Crate or shipping case. Knockdown..... A. E. Harris
 Crown swagers. Mold for seamless..... A. N. Coates
 Cultivator..... S. H. Tinsman
 Cultivator..... J. E. Spraggins
 Curtain fixture. Adjustable..... E. G. Alther et al
 Curtain stretcher pin..... W. A. Shoemaker
 Cushion forming mechanism..... C. A. Fisher
 Cylinder drainer..... A. G. Hewett
 Dark room. Portable..... E. L. Hall
 Dental dilating forceps, or appliance for dental or surgical use..... G. H. Parsons
 Dental engine handpiece..... F. K. Hesse
 Dental handpiece..... A. C. Sargent
 Discharge mechanism and valve. Automatic..... J. Douglass
 Display rack..... E. B. Weston
 Display stand..... A. Wright
 Ditching machine..... 2 pats. J. W. Dutton
 Door controlling device..... A. B. Caywood
 Door fastening device..... C. H. Bellamy
 Door hanger. Sliding..... A. W. McClure
 Door operating device. Double..... C. P. & F. E. Howard
 Door securer..... J. I. Huyler
 Doors, gates, &c. Arresting device for..... E. A. Guedenev et al
 Double boiler..... M. J. Hillman
 Dough raiser..... W. A. Heckel
 Draft and buffing rigging..... R. D. Gallagher, Jr
 Draft drifing..... O. S. Pulliam
 Draw gear and buffing apparatus..... H. F. Woernley
 Dredge..... J. B. Cantwell
 Dredger head for suction dredges. Adjustable..... O. Fruhling
 Dredging apparatus..... O. Fruhling
 Dredging device..... O. Fruhling
 Drill coupling..... C. H. Giese
 Drill or pump rod extractor..... E. F. Day
 Dry separator..... T. A. Edison
 Dye and making same. Blue sulfur..... A. Schmidt et al
 Dyeing apparatus..... J. Kershaw
 Dyeing machine..... J. R. Greenwood
 Dyeing machine..... J. Hussong

Elbow machine..... A. P. Tucker
 Electric generators. Means for controlling the voltage from..... I. Deutsch
 Electric oscillation indicator..... A. Slaby
 Electric regulator. Automatic..... A. McGary
 Electric switch..... I. H. Parsons
 Electric switch and signal apparatus..... L. Griffith
 Electric distribution system..... B. J. Arnold
 Electrical oscillations of different phases. Producing quick..... F. Brann
 Electromedical apparatus W. Hirschhorn et al
 Elevator controlling mechanism. Automatic..... J. F. Murphy
 Embroidering..... A. Schnauder
 Endless elevator..... E. Bousse
 Engine crank..... C. J. Englert
 Engine driving mechanism..... J. R. Crow
 Engine speed regulator. Explosion..... M. H. Dalev
 Engine vaporizer. Hydrocarbon E. P. Lamb
 Engines. Sparking igniter device for hydrocarbon..... J. W. Packard
 Exercising apparatus..... J. L. Roberts
 Eyeglass mounting..... S. E. West
 Fabric treating apparatus. Tubular..... W. R. Smith
 Fabric turning machine..... C. S. Shallenberger
 Fan. Motor..... G. E. Jacobson
 Faucet coupling..... L. A. Cornelius
 Felly joint..... J. B. Higginbotham
 File. Paper..... W. F. Krone
 Filter device..... W. B. Smith
 Filter press..... E. Hatschek
 Filter. Pressure..... S. G. Derham
 Fire extinguishing composition, &c..... S. T. Boyd
 Firearm..... L. O. Thayer
 Firearm..... F. W. Brooks
 Firearm. Magazine..... L. L. Hepburn
 Firearm safety device. Repeating..... L. L. Hepburn
 Firearm sight..... J. Windridge
 Fireproof flooring construction with iron beams connecting the carrying walls. Flat..... W. Kohmetz
 Fireproof shutter system..... W. L. D'Olier
 Fireproof window..... I. N. Price
 Flowers, vines, &c. Machine for manufacturing artificial..... H. L. McKain
 Fluids by solar heat. Apparatus for raising..... A. Beurrer
 Fluorescent indicator..... A. T. Abbey et al
 Folding box..... Z. B. Webb
 Folding machine..... H. L. Illingworth
 Folding machine..... T. D. Robinson et al
 Folding machine. Circular..... G. A. Wenz et al
 Food cutter..... M. A. Pluecker
 Food package. Stock..... M. L. Luebben
 Fruit or lard press..... S. R. Munson
 Fuel and making same. Composite..... M. R. Spelman
 Fuel. Artificial block..... M. Andes
 Fuel. Injector or burner for oil, liquid, or gaseous..... E. Dyson
 Furnace..... E. S. Ormsby
 Furnace..... W. A. Koneman
 Fuse. Time..... K. Wieser
 Gage pole or rod..... F. Robinson
 Game apparatus..... W. Burbank
 Game apparatus..... J. Forsheim
 Garment..... V. W. Glover
 Garment fastening..... M. W. Ferris
 Garment fitting stand..... W. H. Letters
 Gas burner regulator..... C. H. Resor
 Gas burner. Safety..... A. C. Carey
 Gas burner. Self-lighting..... F. Steril
 Gas controller..... V. H. Slinack
 Gas light. Incandescent..... V. H. Slinack
 Gas lighting or extinguishing apparatus. Contact device for..... F. Testor
 Gas pressure regulator..... W. T. Croslen
 Gate..... J. Dunford
 Gear. Speed changing..... J. T. H. Paul
 Gear teeth. Instrument for plotting..... C. F. Moon
 Gin safety attachment..... W. S. Baker
 Glass houses. Apparatus for handling material in..... W. D. Hartuppe
 Glass. Making wired..... R. A. B. Walsh
 Glass melting furnace..... W. T. Nicholls
 Glass polishing apparatus. Cut..... J. J. McCue, Jr
 Gold and silver ores. Treating..... C. H. Rider
 Gold saving apparatus..... H. O. Clark
 Golf ball holder..... W. B. Anderton
 Golf club adjustable head..... R. L. & E. M. Urquhart
 Governor. Speed..... H. N. Motesinger
 Grading and ditching machine. Road..... R. Russell
 Grain binder..... F. A. Ryther
 Grain drill distributor..... F. R. Packham et al
 Grain or other similar products. Frictional scourer for..... G. W. Long
 Granite. Manufacture of artificial..... L. A. Grachey
 Grater..... C. B. Hibbard
 Gypsum. Manufacture of composition from calcined..... L. Mack
 Hame fastener..... J. H. Parmelee
 Harrow tooth fastening..... L. L. Haworth
 Harvester. Corn..... D. Binn
 Harvester. Traveling..... D. Best
 Hasp lock..... R. B. Rice
 Hat bead rest..... F. Jaeger
 Hay distributor..... O. & G. Hyatt
 Hay rake. Horse..... S. J. Baxter et al
 Heat coil. Self soldering..... F. R. Cook
 Heddle..... E. Butcher
 Hinge. Detachable spring..... J. D. Swack
 Hitching strap attachment..... F. A. Witzig
 Hoisting and conveying apparatus..... H. D. Ga Nung
 Holding and draining rack..... M. C. Klopffinger
 Hoof pad..... J. A. Buck et al
 Hoof pad..... G. Duffield et al
 Horse boot..... L. Lackner
 Horseshoe..... C. L. Crush
 Hose supporter clasp..... L. A. & F. M. Fritsch
 Hub. Spoke tension..... C. E. Brownson
 Hub. Wheel..... M. Lachman
 Hydrocarbon burner..... W. T. Wood
 Incandescent street light..... V. H. Slinack
 Indicating character..... J. E. Hosner
 Indicator..... F. J. B. Cordeiro
 Inhaler and sprayer..... J. E. Anderson
 Insect trap..... 2 pats. S. R. Welch
 Insulator..... S. Oakman
 Jar closer and fastener..... A. Abramson
 Jar neck and closure..... A. Smelker

Knitting machine stop motion.....

Knob. Screwless door.....

Knitter.....

Lace fastening clip. Shoe.....

Lacework holder.....

Ladder prop.....

Lampshade.....

Lantern apparatus. Automatic magic.....

M. Beutzon

Latch.....

Latch Gate.....

Leather. Treating manufactured.....

Levitating mill.....

Light fixture.....

Locking device.....

Log hauler.....

Loom center selvage forming attachment.....

A. S. Cowan

Loom for weaving carpets.....

Loom for weaving pile fabric.....

Loom picker motion check.....

Loom pile wire motion.....

Loom warp beam.....

Lubricating apparatus.....

Lubricator.....

Lubricator.....

Lubricator guard.....

Match box.....

Match making machinery.....

Measuring instrument.....

Measuring machine. Area.....

Mechanical movement.....

Mechanical movement.....

W. H. Dixon

Metal grinding or polishing machine.....

Metals from sulfid ores. Separating.....

Metallic cyanids. Making.....

Microscope objective holder.....

Milling machine.....

Mine hauls. Safety device for cable.....

A. Palmros

Mining machinery dipper.....

Mixing machine.....

Molding apparatus vibrator.....

Mosquito canopy.....

Motion transmitter.....

Motor.....

Multiple cylinder engine.....

Mush Making.....

Music leaf turner.....

Nail or spike driver.....

Nail plate machine feeding mechanism.....

C. B. Gardiner

Neckband stretcher.....

Neck protector.....

Neckwear holder.....

Nut lock.....

Oil cup.....

Ore concentrator .. 2 pats.....

Ore washer.....

Organ. Folding.....

Oven Bake.....

Packing and display box.....

Packing. Shaft liquid seal.....

Packing. Turbine shaft.....

Paint composition.....

Painter's palette box.....

Paper drying machine.....

Pavement.....

Paving material, &c. Apparatus for heating asphalt.....

Pen feeder bar. Fountain.....

Photographic plate holders. Light excluding device for.....

Photographic printing apparatus.....

J. H. Stark et al

Picture frame.....

Picture frames. Foldable blank for forming.....

Piling construction. Metallic sheet.....

Piling. Metallic sheet.....

Piling. Sheet.....

Pin catch.....

Pipe wrench.....

Plastic material cutting machine.....

Plug. Multiple attachment.....

Pneumatic despatch apparatus.....

Power transmission device. Frictional.....

I. Larsen et al

Power transmitting device.....

Print. Safety composite color.....

Printer's inking and damping roller.....

Printer's register hook.....

Printing machine. Duplex stencil.....

Printing machine. Rotary.....

Projectiles. Producing small caliber jacketed steel.....

Propeller Boat.....

Propelling mechanism.....

Protractor tape.....

Pump. Duplex steam.....

Pump. Oil.....

Pumps. Standing valve for oil or Artesian well.....

Punching or shearing machine. Metal.....

R. Norrie

Puree and vegetable forcer.....

Quilling machine.....

Rabble arm and rake.....

Radiator air valve.....

Rail chair.....

Rail joint.....

Rail joint..... 2 pats.....

Rail splice.....

Railway rail connection.....

Railway rails to railway ties. Clamp for connecting.....

Railway safety top.....

Railway signal.....

Railway signaling system. Electric.....

M. A. Born

Railway system. Electrical.....

Railway tie.....

Railway tie.....

Railway track.....

Railway track layer.....

Railways. Staff system and apparatus for controlling traffic on single line.....

Ratchet and pawl mechanism.....

Razor strop.....

Reflector of prisms glass.....

Rein support.....

Rendering or reducing apparatus.....

Revolving stand.....

Rheostat.....

Ribbon into lace. Machine for inserting.....

Riveting mechanism.....

Road roller scraper.....

Roads to allay dust. Treating.....

Roll corrugating machine attachment for automatically setting the rolls.....

D. S. Anthony

Roof sheathing.....

Rotary engine.....

Rotary engine.....

Rotary engine.....

Rotary engine.....

Rotary motor.....

Rotary steam engine.....

Rubber from vulcanized rubber waste. Reclaiming.....

Rule and angle finder.....

Sack holder.....

Sample case. Folding.....

Sample case. Folding.....

Saw. Crosscut table.....

Saw gumming and sharpening machine. Combined.....

Saw lubricator Band.....

Saw set and gage. Combined.....

Saw tables. Adjustable stop for band.....

J. T. Towsley

Scale recording attachment.....

Scale registering device. Weighing.....

Scenery trimmer. Theatrical.....

Scraper. Wheeled.....

Screening apparatus.....

Seal. Bottle, &c.....

Seal for sheet metal vessels.....

Self-centering plate.....

Separator leveling bolster.....

Separator liner. Centrifugal.....

P. A. M. Arnberg

Sewing machine cloth clamp. Buttonhole.....

Sewing machine Shoe.....

Sewing machine throat plate support.....

Shade locking device. Curtain.....

Shade or blind dust guard. Window.....

Sharpening machine. Disk.....

Shears for cutting T or other angle iron.....

Sheet feed or separator. reissue.....

Ships at sea. Appliance for transporting supplies to and from.....

Shoe polisher.....

Sign. Display.....

Signaling system. Wireless.....

L. Mandelstam et al

Siphon cover.....

Sizing machine.....

Slimes. Preseure filter for.....

Snatch block.....

Sodding composition and making same.....

Soldering machine. Can.....

Soldering machines or for other purposes. Feed mechanism for can.....

Solid and fluid fuel furnace.....

Sound reproducing apparatus. Mechanism for changing the reproducer pins of.....

Sound reproducing instruments. Horn for.....

F. S. Kinney

Spark arrester.....

Spear. Automatic rope.....

Spigot.....

Spindles. Bobbin clutch for rotatable.....

Spindles. Bobbin clutching means for rotatable.....

Spindles. Bobbin clutching means for spinning.....

Spinning and doubling frame spindle. Self-contained.....

Spinning and winding machine. Yarn.....

A. J. & H. A. Foulds

Spinning frame scavenger roll support.....

Spinning spindle.....

Spool or the like.....

Stacker for threshing machines. Pneumatic straw.....

Stamp mill.....

Stamp mill. Ore.....

Steam cylinder.....

Steam trap.....

Stencil sheets. Plate for making.....

G. L. Herrick

Stirrer and tongs. Combined.....

Store service apparatus.....

Stove. Oil.....

Stove. Portable.....

Stretcher.....

Surgical bandage and material for making same.....

Switch key.....

Syringe needles. Metallic package for.....

Table and desk. Combination.....

N. W. Selander

Tableware. Service.....

Talking machine arm.....

Talking machine hollow sound-conveying tube.....

Telegraph key.....

Teisgraphic transmitting tape perforator.....

Telephone call teller.....

Telephone exchange system.....

Telephone exchanges. Multiple switchboard for.....

Telephone line service meter.....

Telephone sanitary rotating diaphragm.....

S. Churchill-Otton

Telephone system and apparatus therefor.....

Telephone talking circuits. Device for connecting and disconnecting.....

Tennis marker.....

Theater chair.....

Thresher. Pea or bean.....

Ticket. Railway.....

Ticket. Railway.....

Tie plate.....

Tile, brick, &c.....

Tires.....

Tire inflating pump.....

Tire rim.....

Toaster, broiler, &c.....

Tobacco stripping machine.....

Tongue support.....

Tong holder. Adjustable.....

Toothpick.....

Toy. Mechanical.....

Toy torpedo exploder.....

Train order protector and signal lock.....

F. E. Draper et al

Transfer pad.....

Transformer.....

Tree coupling.....

Trolley.....

Trolley guard.....

Truck.....

Truck bolster support. Car.....

Truck driving mechanism.....

Truck. Electric car. 2 pats.....

Truck transom. Car.....

Tube or flue cleaner.....

Tufting machine. Cushion.....

W. D. Grosjean et al

Typewriter cushion.....

Typewriting machine.....

Typewriting machine.....

Typewriting machine.....

Typewriting machine tabulating mechanism.....

Umbrella.....

Umbrella protector.....

Valve.....

Vapor burner.....

Vehicle controller. Electrical.....

Vehicle. Foot propelled.....

Vehicle motor and frame therefor.....

Vehicle running gear.....

Vehicle seat shifting rail fastener.....

F. H. Delker

Vehicle spring.....

Vehicle steering gear and motor controlling mechanism. Motor.....

Vehicle wheel.....

Vehicle wheel.....

Ventilating apparatus. Body.....

Vertebral stretcher.....

Violin wrist brace.....

Vise.....

Wagon. Lumber.....

Wagon or car. Dumping.....

Wagon. Peanut and combination.....

C. W. Scout

Wagon reach.....

Wagon. Roll off lumber.....

Wagon train.....

Washing machine gearing.....

Water closet.....

Water sealing trap.....

Water stage recorder. Automatic.....

Water wheel. Impact.....

Waterproof coat.....

Waterproofing sheeting.....

Weather strip for doors.....

Well tube strainer.....

Wheel boiling device.....

Wheels. Removable runner for carriage or wagon.....

Wheelbarrow tray.....

Whetstone molding apparatus.....

Windmill.....

Window.....

Window.....

Window. Metallic siding.....

Wire drawing die.....

Wire stretcher.....

Woven fabric.....

Wrench.....

Wrench.....

Wrench attachment.....

Yarn from magazine rolls or short fiber material in a moist condition. Producing.....

R. Kron

Yoke ring. Neck.....

DESIGNS.

Boat. Power.....

Cabinet.....

Stove.....

Issued December 6, 1904.

MECHANICAL PATENTS.

Adding machine.....

Adding machine.....

Adjustable chair or similar article.....

Air brake.....

Air forcing mechanism.....

Ammonium formate. Manufacturing.....

Ammunition hoist.....

Amusement apparatus.....

Auger. Post hole.....

Automobile driving gear.....

Automobile spring.....

Ax.....

Axle construction. Front.....

Axle. Lubricating.....

Balance. Lever.....

Baling fibrous material.....

Baling press.....

Balls by the use of plastic or gutta percha strips. Covering golf.....

Banana storage and show case.....

Barrel scrubbing machine.....

Bearing housing.....

Bearing. Roller.....

Bed.....

Bedclothes fastener.....

Belt.....

Belt cutter and square.....

Belt fastener. Machine.....

Belt loop and garment supporter. Combined.....

Belt. Ore concentrator.....

Belt tightener. Automatic. 2 pats.....

Bicycle.....

Bicycle gearing and controlling mechanism therefor.....

Bill or invoice.....

Binder. Catalogue.....

Binder. Loose leaf.....

Binding. Apparel.....

Blower.....

Boat. Life.....

Boat or launch.....

Bobbin.....

Boiler furnace. Steam.....

Boiler tube cleaners. Turbine motor for.....

Book attachment. Account.....

Bootjack.....

Bottle.....

Bottle. Non refillable.....

Bottle. Non refillable.....

Bottle. Non refillable.....

Bottle washing machine.....

Bottling machine.....

Box.....

Box machine.....

Bracket.....

Bread. Making.....

Brick pressing machine.....

Bridge or other structures. Expansion or movable bearings for.....

Brush holder.....

Bucket. Grab.....

Buckle.....

Building blocks. Manufacture of.....

Bur wheel.....

Button. Snap.....

Cabinet for specialists.....

Cables on winding drums. Machine for laying.....

Calculating and recording machine.....

Calendering roll.....

Can capping machine.....

Can opener.....

Car body.....

Car bolster. Trussed.....

Car brake.....

Car coupling.....

Car coupling.....

Car coupling.....

Car door hanging and operating device.....

Car. Dumping.....

Car fender.....

Car indicating or recording mechanism. Street.....

Car loader.....

Car. Passenger.....

Car signal. Street.....

Car underframing.....

Car vestibule door and trap.....

Cars, &c. Electric propulsion of.....

Cars or trains. Means for automatically stopping electric railway.....

Carbureter.....

Carbureting apparatus. Explosive engine.....

Cards. Educational.....

Carriage curtain or the like fastener.....

Cartridge.....

Casket cover.....

Casting plant.....

Cement block mold.....

Cement building block molding press.....

Centrifugal machine.....

Chair.....

Check hook.....

Chill.....

Chuck.....

Churn.....

Cigar package. Non refillable.....

Cigar. Self igniting.....

Circuit changer.....

Clinker catcher.....

Clock mechanism escapement.....

Clothes hanger.....

Clothes sprinkler.....

Cloths, garments, &c. Support for sanitary.....

Clutch. Friction.....

Clutch. Friction.....

Cock. Gas.....

Coffin raising or lowering device.....

Coin box.....

Coin delivering apparatus. Automatic.....

Coin receptacle.....

Concentrator.....

Concentrator.....

Controller.....

Cooking device. Steam.....

Cork. Braided.....

Core forming device.....

Corn husking and shredding machine.....

Corn husking hook.....

Cotton chopper and cultivator.....

Cotton elevator and distributor. Pneumatic.....

Counter molding machine.....

Counter. Store storage and display.....

Coupling.....

Cover. Kettle.....

Crate. Banana.....

Cream cooler. Automatic.....

Cultivator.....

Cultivator. Disk.....

Current controlling system.....

Current rectifier.....

Curtain fixture.....

Curtain pole. Adjustable.....

Dam.....

Decoy duck.....

Dental vulcanizer.....

Derrick. Portable.....

Detachable handle for valises, &c.....

Diery.....

Die sinking machine.....

Disk and colter holder.....

Disk drill.....

Ditching machine.....

Door brace.....

Door holder.....

Door. Rotating.....

Dough dividing method and apparatus.....

Dough forming machine.....

Dough molding apparatus.....

Draft attachment.....

Drafting instrument.....

Drawer bin support.....

Dredge. Ditching.....

Drier.....

Drill and reamer. Combination.....

Drill press A. P. Weigel
Dye and making same. Green sulfur
Egg, cream, &c., beater E. M. Morgan
Electric conductor suspension clamp
..... E. L. Schwartz et al
Electric device. Portable C. E. Avery
Electric machine. Static J. G. H. Burboa
Electric switch W. S. Levin
Electric switch G. B. Low
Electric switch W. Kingsland
Electric switch E. A. La Har
Electric switch T. A. Cameron
Electric transmission mechanism
..... C. G. Simonds
Electric wire conduit C. C. Sibley et al
Electric wiring cleat E. C. Hunt
Electrical apparatus coil J. W. Farley
Electrical apparatus. Winding for
..... J. W. Farley
Electrical energy. Apparatus for wirelessly
transmitting D. W. Troy
Electrode F. J. Briggs
Electromagnetic apparatus J. N. Mahoney
Elevator E. Altman
Elevator safety device J. C. Cottle
Engine sparking device. Internal combustion
..... C. E. Sterne
Engines. Hot tube for gas J. V. Ebel et al
Envelop C. W. Wilson
Excercising apparatus W. J. Bryon, Jr
Explosive engine F. J. Rochow
Eyeglass screw lock. 2 pats. A. M. Ward
Eyeglasses R. M. Hall
Fastener J. D. Sturckler
Feeder. Animal P. E. & C. F. Howard
Fence post J. Steward
Fence post W. L. Vestal
Fiber cleaning machine J. Garcia
Fifth wheel G. R. Morton
File. Document binder G. Bonnell
File holder M. J. Wade
File. Newspaper F. X. Krabach
Filter N. B. Rice
Filter L. V. Rood
Filter. Pressure W. W. Paddock
Finger ring. Ornamental L. E. Sadler
Fire apparatus B. B. Briggs
Fire escape J. S. Andrews
Fire escape M. W. Miracle
Fire escape F. H. Babcock
Fire extinguisher. Automatic stationary
..... F. A. Phelps
Fire window. Automatic G. Schwing et al
Fireproof construction W. A. Kennedy
Flash light powder receptacle H. H. Bowen
Flax treating apparatus B. Noldner
Flight forming machine J. L. Peddycoart
Floor rack J. H. Petroskey
Floor scraper A. Larson et al
Flushing box. Closet H. Aird
Food. Stock H. C. Joehnk et al
Forging mechanism. Bar head J. Hughes
Fruit harvester E. F. Wilson
Fruit picker L. Terry
Fuel burner E. F. Gwynn
Furnace E. S. Ormsby
Furnace for heating spokes, &c. E. Einfield
Furnace for reduction of garbage or other re-
fuse matter J. Lindsey et al
Fuse and cut out. Electric B. H. Glover
Garment fastener M. W. Henis
Garment hanger. Combination S. N. Marsh
Garment supporting and locking device
..... E. J. O. Rother
Garter suspensory attachment D. B. Fraser
Gas generator P. Schmidt
Gas generator. Acetylene L. P. Powell
Gate W. D. Harmon
Glass pressing machine C. J. Koenig
Grading and excavating machine
..... S. H. Bloomer
Grain conveyer. Portable J. W. McCoy
Grain drier for cars J. J. Swaine
Grain drill H. N. Faas et al
Grain drill F. E. Marsh
Grate attachment C. E. Dittrich
Grease cup F. Soler
Grinding apparatus R. L. Wason
Grocery bin J. Strine, Sr
Hair crimper H. C. Adams
Hammer. Pneumatic M. Maximilian
Hatch fastener A. P. Rankin
Hay carrier L. E. Porter
Heating apparatus. Hot water A. B. Reck
Heel compressing machine S. D. Leland
Heel compressing machine C. L. Allen
Heel compressing machine E. A. Tripp
Heel compressing machine mold or die
..... T. Lund
Hoisting device S. T. Miller
Hoisting engine R. Bowles et al
Holdback attachment. Vehicle J. T. Miller
Holdback fastening O. C. Davis
Hook and eye G. A. Mercer, Jr
Horse releaser C. B. Collins
Horseshoe I. G. Howell
Horseshoe. Composition H. Bartley
Horseshoe. Composition G. J. Peacock et al
Horseshoe. Soft tread F. M. Miller
Horse cleaning apparatus G. Clements et al
Hydraulic press C. Prott
Hydraulic press multiplier A. Deries et al
Ice creeper. Detachable J. E. Toscan
Identification card L. L. Smith
Indoxyl, &c. Making A. Bischler
Induction coil R. Varley
Injector L. E. Hogue
Inkstand C. H. Numan
Insect trap H. T. Casey
Insulator F. M. Locke
Knitted fabric. Ribbed R. W. Scott
Label affixing machine H. Maust
Lacing strip M. K. Bortree
Lamp guard F. W. Winbolt
Lamp hanger or support A. H. Humphrey
Lamp igniter. Gas A. H. Humphrey
Latch. Sliding door P. M. Kilg
Lathe R. F. Scott
Lathering device T. E. Beck
Leather goods. Cleaning white W. Forger
Leather staking machine G. W. Baker
Leather stretching machine E. L. Post
Leather used for making power belts. Ma-
chine for stretching E. L. Post
Letter opener, pencil sharpener, and eraser.
Combined A. F. Rebhan
Lettering device G. E. Green et al
Limb. Artificial S. I. Henry
Linotype machine P. T. Dodge

Liquid elevator. Pneumatic E. Hastain
Liquid supply system X. Caverno
Load binder H. A. Patterson
Locomotive F. Burger et al
Locomotive and stationary engine. Convertible
..... M. H. Kelly et al
Log loader and turner E. E. Thomas
Log turner A. D. Shaver
Logging engine. Steam G. Sipler
Loom picker F. A. Wardwell
Loom picker stick motion C. H. Draper
Lubricator S. B. Forse
Mail box L. D. West
Mail box W. G. Jones et al
Mail carrier box P. J. Jonsrud et al
Mashing and converting process C. H. Caspar
Match making machine J. C. Donnelly
Measure and filter. Liquid J. T. Story
Measuring instrument. Electrical F. W. Roller
Measuring instruments. Temperature com-
pensating device for electrical W. H. Bristol
Meat tenderer, also vegetable cutter
..... E. G. Riedel
Mining column R. L. Ambrose
Moistening, laying and binding gummed paper
Machine for B. Simpson
Mop and wringer. Combined T. G. Amnden
Mop head C. Morgan
Mower divider attachment H. M. Schliesser
Musical instrument U. C. Pipes
Musical instrument mouthpiece P. F. Kruse
Nail feeding mechanism W. Wolfe
Needle holder G. F. Richter
Nozzle. Adjustable flushing J. C. Wilson
Nut lock J. O'Meara
Nut lock E. Blue
Oiler. Trolley wheel W. J. Sloan et al
Ordnance. Breech loading A. H. Emery
Oven door indicator H. E. Stelts
Packages. Device for applying fluid pressure
to the insides of G. E. O'Neill
Pan lid or cover holder or lifter J. N. Thomas
Panel or front, &c. Flexible sliding
..... H. Romunder
Paper clip W. H. Redington
Paper clip F. R. Welton
Paper feeding machine E. J. Hallberg
Paper finishing machine A. W. Case
Paper making machine J. L. Bontey
Paper pulp brushing engine C. E. Pope
Pen. Fountain J. Sinnott
Pencil sharpener and eraser. Combination
..... C. Payne
Perambulator G. D. Leadbetter
Photographic plate holder F. J. Mauborgne
Photographic printing cabinet D. R. Kinsey
Piano action H. Hornbeck
Piano player key striker J. Courville
Pile fabric cutting machine W. Read et al
Pin clasp W. R. Smith
Pin retainer F. H. Voight
Pipe coupling J. D. Walsh
Pipe grab F. J. Lukins
Pipe mold L. R. Peck
Pipes. Securing metal coverings upon
..... R. V. Skowronek
Pipes, tubes or rods. Manufacturing screw
threaded E. T. Greenfield
Piston rods from cross heads. Device for separ-
ating C. J. McCarthy
Planter and fertilizer distributor. Combined
seed W. C. Lynham et al
Plaster. Adhesive J. E. Birney
Plaster reel. Adhesive J. F. McWilliam
Plate or pan lifter G. D. Leggett
Pliers L. Hansen
Pliers. Soldering R. S. Settle
Plow. Shovel J. A. Faught
Post sharpener, driver and puller
..... W. H. Thomas
Power transmitting mechanism
..... W. McHaffie et al
Press M. J. Weiling
Press G. B. Keplinger
Pressure regulator R. J. Hoffman
Print. Safety composite color F. E. Ives
Printer's galley H. C. Hinchcliff
Printer's plate block W. Dove et al
Printing frame. Blue J. W. Upp et al
Printing machine J. S. Duncan
Printing press B. McGinty
Printing press gripper B. McGinty
Projectiles. Device for controlling flight of
multimissile C. La Dow
Projectiles. Governing the flight of multi-
missile C. La Dow
Projectiles. Means for concentrating multi-
missile C. La Dow
Projectiles. Means for governing the flight
of multimissile C. La Dow
Projectiles to effect close shooting. Means for
controlling the flight of multimissile
..... C. La Dow
Propelling and steering mechanism
..... D. W. Rantine
Protectors. Machine for making and inserting
..... G. Goddu
Propelling and steering mechanism
..... D. W. Rantine
Protractor F. E. Vandercook
Pruning implement J. Earnhart
Pump P. L. Ward
Pump P. J. Leithausen
Pump. Air lift F. J. Kuhlmann
Pump. Centrifugal T. R. Gath
Punching mechanism. Sheet metal W. A. Hall
Pyrographic pencil exciter J. Anderson
Radiator W. Leek
Radiator valve C. Wisbech
Railway alarm signal E. C. Lawrence
Railway. Electric R. C. Parsons et al
Railway frog and crossing V. Schaefer
Railway hold ups. Device for the prevention
of S. A. Kitchener
Railway signal apparatus H. Walheinke
Railway switch J. Schilhan
Railway track sanding device G. Giolosa
Reel and post puller. Combined C. Unsicker
Reeling device C. W. Levine
Resonator J. F. Skirrow et al
Rivet extractor J. E. Conard
Rock drilling machine L. S. Pfoutz
Roof. Tile W. C. Mitchell
Rope machine J. Good
Rotary engine F. C. Francisco
Rotary engine B. F. Augustine
Rotary engine F. M. Lechner
Rubber or other sap yielding trees. Device
for grooving or tapping C. A. Sanborn
Ruler. Combination W. H. Ferris

Saw Hack W. E. Lawrence
Sash guide and metal weather strip
..... W. H. Scholes
Saw machine. Circular F. von Holdt
Saw mill upper guide. Band E. E. Thomas
Saw set H. F. Stretch
Sawing machine N. Blair
Scaffold T. Macharacek
Scale. Computing R. D. H. Anderson
Scale dial J. H. Osborne
Scale relieving gear. Track R. N. Fairbanks
Scale. Spring R. F. Chatillon
Scale. Spring balance A. N. Ozias
Scale. Weighing R. N. Fairbanks
Seam. Boiler G. H. Rheuan
Search light system W. O. Webber
Seat brace C. B. Limerick
Seeding machine. Duplex J. M. W. Long
Separating collated articles. Device for
..... B. F. Ennis
Sewing machine guide G. C. Perry
Sewing machine. Hemstitch
..... C. M. Abercrombie
Sewing machine presser foot. Hemstitch
..... C. M. Abercrombie
Shade fixture. Window F. G. Brumbaugh
Shift. Flexible C. Wicksteed
Shaft supporting and operating mechanism
..... J. E. Jones
Sharpener. Shears J. H. Van Tassel et al
Shaving cup W. E. Cooper
Shaving cup soap holder S. Ehman
Shears A. N. Eastman
Shoe attachment I. R. Waters
Shoe tacking machine H. A. Ballard
Shoe upper tying machine A. Raiche
Shot or other projectiles. Controlling the
flight of charges of C. La Dow
Shower bath J. R. Mercereau
Sidewalk. Spring supported J. S. Gregg
Siding or floor clamp H. W. Weckman
Sifter or strainer. Culinary M. L. Bri ton
Signal transmitting and receiving apparatus
..... R. A. Fessenden
Signaling apparatus. Vacuum pneumatic
..... W. J. Becker
Slotting machine T. C. Dill
Smut machine A. V. Cleland
Snatch block J. E. Sjoberg
Sod cutter J. Hudemeyer et al
Sound box. Convertible J. K. Reynard
Spacing rack. Automatic adjustable
..... E. A. Stickney
Speed changing mechanism C. J. Reed
Square. Folding H. T. Buhmeier
Stall. Animal W. M. Underhill
Steam boiler E. Lane
Steam boiler A. C. Stucky
Steam engine. Impulsive G. A. Aldrich
Steam generator A. Montupet
Steam generator P. E. Leroux
Steam generator. Multitubular E. Duchesne
Stereotype plate clamp C. P. Cottrell
Stereotype shaving machines. Ejecting mech-
anism for A. H. Cruse
Stove. Heating B. F. Voorhis
Stovepipe H. F. Strehow
Stovepipe C. A. C. & H. T. Nelson
Stovepipe and drum radiator J. H. Green
Strip or hand feeding device H. Casler
Subterranean passage lining A. Fernandez
Sucker rod grab O. A. Mann
Superheater P. Blanc
Supporting frame J. Liebau
Switch E. F. Porter
Switch operating device W. R. Thurston
Table fountain. Portable S. T. Oldridge
Talking machine H. B. McNulty
Teeth. Matrix holding device for filling
..... C. M. Beam
Telegraph instrument. Combinational
..... F. G. Barbosa
Telegraph key. Self closing
..... N. S. McKinsey et al
Telephone exchange. Automatic
..... F. A. Lundquist
Telephone transmitter G. W. Talley
Tellurian A. Hosking
Temperature regulating device E. H. Hunter
Theater drop curtain tensioning device
..... J. R. Clancy
Thermostat for electric circuits J. P. Robertson
Thread finishing machine X. Bossart
Thresher B. W. Salmon
Threshing machine self feeder C. R. Parks
Ticket. Transportation P. C. Dockstader
Time detector. Watchman's
..... R. Vogelmann et al
Timepiece dial A. M. Lane
Tinner's mandrel H. Flynt
Tire C. G. Fawkes
Tire cover. Protective R. Wallwork
Tire. Pneumatic C. E. Duryea
Tires for heating. Device for holding
..... S. L. Geddes
Tires. Puncture plug for pneumatic
..... F. A. Sieverling
Tobacco pouch E. G. Lundquist
Tool. Combination A. P. Berggreen
Track and switch system W. R. Thurston
Train. Traction D. Brennan, Jr
Transmitter attachment W. W. Dean
Trestle L. O. Claybaugh
Trolley guard G. W. Watson
Trolley hanger R. W. McIlvaine
Trolley operated electric switch J. S. Ruddick
Trolley pole C. H. Spangler
Trolley track C. A. Gower
Trolley wheel guard for electric wires
..... J. L. Sullivan
Trolley wire clamp and feed wire support
..... T. A. Furniss
Truck bolster. Car G. G. Floyd
Truck bolster. Cast A. Stucki
Trunk. Convertible R. Guenette
Truss pad A. E. Johnson
Turbine O. Junggren
Turbine. Steam E. Wolner
Turbine. Steam or gas W. L. Boddener
Type writing machine H. A. Carhart
Type writing machine. Convertible electric
..... G. M. Kitzmiller
Type writing machine line spacing mechanism
..... G. M. Kitzmiller
Type writing machine paper feed mechanism
..... G. M. Kitzmiller
Type writing machine ribbon mechanism
..... G. M. Kitzmiller
Upholstering machine J. H. Hagedorn

Valve J. W. Fuller
Valve and blow off. Safety A. Goebel
Valve gear. Explosive engine C. H. Way
Valve seat truing device H. L. Mitchell
Vehicle brake. Electric J. N. Mahoney
Vehicle controlling device. Electrically pro-
pelled O. Lasche
Vehicle stopping device B. Viola et al
Vehicles. Plow for electrically propelled
..... R. C. Parsons et al
Veilings or other tulle. Machine for sizing
and finishing L. D. Morand
Vending machine. Coin operated A. B. Davis
Ventilating system C. H. Caspar
Ventilator M. L. Budd
Voting machine C. De Croes
Voting machine independent voting apparatus
..... C. De Croes
Vulcanizer J. K. Williams
Vulcanizer attachment A. J. White
Wad for multimissile charges C. La Dow
Wad to effect and control spreading of multi-
missile charges C. La Dow
Wafers, &c., with paste, &c. Machine for
spreading G. S. Baker
Wagon drag J. Graber et al
Wagon. Dumping J. H. Jack
Wagon. Vender's P. Smith
Water and gas separator A. T. Newman
Water. Apparatus for applying bed and bank
linings under E. Fichet
Water closet ventilator attachment
..... C. A. Sullivan et al
Water elevator. Compressed air G. H. Stout
Water gate operating means A. J. Collar
Water heater J. Coyne
Water motor C. L. Wilkins et al
Water. Purifying T. E. Fulghum
Water raising apparatus R. A. Wilken
Waterway. Pleasure A. Pusterla
Welding. Metal H. Wachwitz
Wheel and crank fastening J. V. Pugh
Winding indicator A. Sperling
Windmill D. A. Fletcher
Window L. A. Brennensuhl et al
Window C. A. Baier
Window closer. Automatic H. C. Smith
Wire grip J. M. Wolfe
Wire. Making compound ingots for seamless
gold plated W. A. Low, Jr
Wire stretcher, clamp and splicer H. Raines
Wire tightener B. Henry
Wiring machine H. H. Hull
Woodworking machine F. A. Broneil
Work holder J. C. Scoggins
Wrench E. E. Keitelsen
Wrench T. O. Sampson
Wrench E. J. & D. T. Thomas
Wrench J. E. Richards et al
Wrench P. F. Duross
Wrench H. Jacobsen
Yoke strap loop. Neck W. E. L. Froggatt

DESIGNS.

Bath tub W. H. Lloyd
Chafing dish stands. Leg for G. E. Savage
Glass vessel N. Kopp
Lavatory W. H. Lloyd
Scale base. Letter W. C. Codman
Trimming A. S. Waltzfelder

Issued December 13, 1904.

MECHANICAL PATENTS

Acid. Manufacturing nitric H. Panling
Advertising device W. J. Paulsen
Advertising form. Corset D. Kops
Alarm device or indicator W. Puckett
Amalgamator E. P. Wilkins
Ammunition wagon or limber W. Mayer
Animal trap G. W. King
Animal trap H. Williamson
Article carrier A. H. Stuart
Assay button dropper E. Keller et al
Auger twisting machine I. Wantling
Automatic lubricator J. Meehan
Automatic safety switch E. L. Pence
Automobile stepper attachment H. M. Landes
Axle C. P. Clark
Axle. Car wheel T. R. Timby
Baby jumper J. A. Morehouse
Bag closure E. E. Mead
Bag fastener S. Bjarnason
Bag turning machine S. T. Lockwood
Bait. Artificial D. W. Brown
Bait holder and fish decoy V. Le Beau
Baling press M. E. Jones et al
Barrel holder A. M. Woltz et al
Basins. Fastening device for stationary wash
..... J. Smith
Battery case R. H. & F. H. Wappler
Bearing. Car axle J. E. Hewitt
Bearing. Disk W. A. Lee
Bearing. Roller J. W. Moaker
Bed E. L. Fuller
Bed attachment J. W. Caster
Beer cooler W. Merz
Beet topping machine
..... W. D. Sr. & W. D. Buchtel, Jr
Bird trap S. W. Wilt
Blank feeding mechanism J. R. Scott
Blanket or strap fastener Z. T. Beatty
Blast furnace J. Coyne
Blind fastener T. A. Upson
Block signal system T. Silvrone
Boiler furnace. Steam M. J. Carrigan
Bolt anchor F. C. Palmer
Book. Combined scrap and invoice
..... C. E. Blodgett
Boot. Anticalking R. Y. Luther
Bottle Y. P. Lee
Bottle H. G. Lord
Bottle. Non-refillable L. Wampler
Bottle. Non-refillable M. M. De Grody
Bracelet or belt. Automatically adjustable
..... F. Mason
Brake beam E. I. Dodds
Brazing L. R. Schaap
Brazing compound L. R. Schaap
Brewing J. Schneble
Brick mold washing machine J. E. Fox
Brick molding machine J. H. Emery
Bucket P. J. Fickinger et al
Buckle W. Griest
Building block. Crystal A. Biberfeld
Bug holes or the like. Temporary closure
for A. Hoerr et al

Burglar alarm.....J. W. Pickens et al
 Button. Skirt.....G. S. Engle
 Cabinet. Kitchen.....B. J. Schlanzer, Sr
 Calipers and dividers. Combined.....P. H. Sanger
 Calipers. Taper.....2 pats. O. B. Creamer et al
 Call box.....J. C. Barclay
 Canceling stamps and postmarking mail. Machine for.....G. W. White
 Candy pulling machine.....J. H. Volkman
 Cans. Tongueless tearing strip for key-opening paint.....H. B. Williams
 Car coupling.....W. S. Lee
 Car diaphragm.....G. S. Wood
 Car door fastener.....J. C. Wands
 Car. Dumping coke.....F. S. Ingoldsby et al
 Car fender.....E. Sherwood
 Car. Railway.....F. S. Ingoldsby et al
 Car sign. Trolley.....P. McDonald
 Car. Stock.....W. F. Ellis
 Car vestibule and step.....W. B. Foster
 Car vestibule diaphragm.....S. D. Fuller
 Cars. Magnet contact for propulsion of.....J. M. Morgan
 Carbureter.....A. J. O'Shea
 Carbureter. Explosive engine.....F. Patee
 Card or label holder.....J. W. Cutler
 Cartridge.....W. Ulrich
 Carving. Imitation wood.....J. Walter
 Cash register.....A. von Hoffmann
 Casting apparatus.....H. G. Underwood
 Casting. Metal.....J. H. Forbes
 Chair bottom weaving tool.....H. C. Dean
 Chalk holder.....A. Links et al
 Chalk holder and sharpener. Combined.....B. Kraus et al
 Charring wood refuse, &c. Apparatus for.....W. A. G. von Heidenstam
 Check. Traveler's certified bank.....S. D. Scudder
 Check row chain.....H. W. Warren
 Cheese cutter.....R. P. King
 Chuck for holding articles to be dressed.....P. Krastir et al
 Chute. Wagon bed discharging.....J. D. Dwyer
 Cigar lighter.....J. I. Ayer
 Clay working machinery. Measuring drum for.....W. R. Cunningham
 Clothes rack.....N. M. Coyner
 Coat pad.....G. Goldman
 Cock. Cylinder.....C. B. Alvis
 Coin controlled apparatus.....J. C. Copeland
 Coin holder or change maker.....J. W. Jones
 Commode. Douche.....S. M. Fischer
 Concentrator. Sand.....E. S. Bennett
 Concentrator. Solution.....J. U. Lloyd
 Concrete block machine.....G. Brady
 Concrete brick pressing machine.....H. H. Spears
 Concrete building block forming machine.....J. H. Stewart
 Concrete pile forming. Pile core for.....A. A. Raymond
 Condenser system.....F. Ray
 Conveyor.....L. Abraham
 Conveyor.....3 pats. W. T. James
 Conveyor band.....F. Abels
 Conveyor. Parcel.....L. Abraham
 Cooking by retained heat. Apparatus for.....F. Kahn
 Cooking machine. Can.....O. E. Vance et al
 Cork puller.....T. W. Kennedy
 Corking machine.....H. F. Frederic
 Corkscrew machine.....A. A. Vignos
 Coupling.....C. Matson et al
 Cover. Receptacle.....R. E. Deane
 Cream separator.....M. Kelley
 Cream separator.....C. Walker
 Crushing machine.....T. L. & T. J. Sturtevant
 Crushing mill. Roll. T. L. & T. J. Sturtevant
 Crushing mill. Roller.....M. P. Boss
 Cultivating implement.....R. C. Beauchamp
 Curb and conduit. Combined.....C. F. Lockwood
 Current motor. Alternate.....V. A. Fynn
 Currycomb.....C. W. Igo
 Cushion spring support.....A. Hirsh
 Cushioning device.....C. von Philp
 Damper.....M. J. Carrigan
 Deraiment guard.....2 pats. R. J. Edwards
 Derrick. Portable.....W. G. Read
 Dish drainer. Collapsible.....D. E. Jones
 Disinfecting device. Telephone.....W. H. Rose
 Disk drill.....C. H. Pelton
 Display form.....J. T. Brown
 Display form.....H. O. Miller
 Door bolt and lock. Barn.....O. G. Parsons
 Door check and closer.....J. Bardsley
 Door fastener. Sliding.....P. J. Casserly
 Door lock. Sliding.....I. N. Sweet
 Door opener or closer.....W. A. Fagan
 Door or window fastener.....E. Homer
 Door stop or holder.....J. R. Fletcher
 Dough forming machine.....C. F. Dietz
 Dough sheeting and lapping machine.....J. H. Mitchell
 Draft equalizer.....W. T. Seelye
 Draft rigging carrier.....O. S. Pulliam
 Drafting appliance. Combination E. J. Early
 Drain pipe.....M. H. Rylatt
 Drier.....J. Scott
 Drill.....H. C. Sergeant
 Drill.....G. R. Rich
 Drinking vessel or the like.....T. Priestnall
 Dye and making same. Blue.....J. Abel et al
 Dynamo. Variable speed.....A. J. Farnsworth
 Educational appliance.....T. E. Thompson
 Egg boiling apparatus.....R. E. Deane
 Electric controller.....W. A. Price
 Electric make and break mechanism.....J. C. Waldo
 Electric motor speed governing apparatus.....H. A. Bond
 Electricity from paper, &c. Apparatus for removing static.....W. H. Chapman
 Electricity from paper, yarn, &c. Removing static.....W. H. Chapman
 Elevator.....H. A. Henderson
 Elevator.....T. Stifter
 Elevator gate automatic danger signal.....C. T. Aaton
 Elevator safety attachment.....A. Matter
 Elevator safety clutch.....A. Whelan
 Elevator valves. Mechanism for operating automatic.....K. E. O. Jansson
 Elevator valves. Operation of automatic.....K. E. O. Jansson
 Embossing machine.....A. Nicollot
 Emergency brake.....G. Macloskie
 Engine speed regulator. Explosive G. Marx, Jr
 Evulop machine.....B. F. Berry
 Eraser cleaner. Backboard.....D. S. Aushman

Evaporating apparatus. Multiple effect.....S. M. Lillie
 Excavating cutter.....J. B. Cantwell
 Excavating machine.....J. Helm
 Exercising ball.....J. Minor
 Exhausting or testing tank.....T. J. Cosens
 Expansion bolt.....I. Church
 Explosive and making same A. Muller-Jacobs
 Fascine.....H. F. Kellner
 Faucet.....C. A. Smith
 Feed controller.....J. P. Wymer
 Feed mechanism. Boiler.....P. Marshall
 Feeder.....C. W. Thomas
 Fence. Flood.....J. Elliott
 Fence post.....J. W. Childs
 Fence wire. Barbed.....A. B. & H. L. Frost et al
 Fertilizer distributor.....R. Love
 Fertilizer dropper.....P. F. Randolph
 Fire alarm transmission. Automatic.....G. B. Bowell
 Fire box. Removable.....F. Burger et al
 Fire door or shutter.....H. T. Moody
 Fire escape.....P. L. Larsen
 Fire escape. Inclosed or tower.....W. F. Ballinger et al
 Fire extinguisher. Portable.....C. Nuhning
 Fish bait or lure.....F. D. Rhodes
 Floral decoration appliance.....F. M. & G. Hoyt
 Fluid heating apparatus.....B. W. Davis
 Fluid pressure brake.....A. Kapteyn
 Folding table.....E. C. Dittmar
 Frame.....F. N. Cottle
 Fruit picker.....J. Utterback
 Furnace.....W. E. Walsh
 Furnace charging crane.....C. L. Taylor
 Furnace for roasting, smelting, &c U. Wedge
 Furnace grate.....R. M. Rubio
 Furnace valve mechanism.....S. V. Huber
 Furnaces. Means for feeding air into steam boiler.....D. A. Reagan
 Garment fastener.....D. Rioux
 Garment hanger.....A. H. Sin-sheimer
 Garment hanger.....E. M. Webster
 Garment supporter.....C. A. Harvey
 Gas burner. Antivibratory.....J. Franklin
 Gas burner cut off. Automatic.....2 pats. J. W. Tatum et al
 Gas burner. Incandescent.....J. C. F. Jurgens
 Gas burner mantle holder.....A. Gabriel et al
 Gas burner and mantle holder.....J. Stubbers
 Gas generating apparatus.....W. H. & G. E. Russell
 Gas generator. Acetylene B. A. Warlick et al
 Gases of blast furnaces, generators, &c Apparatus for cleaning the.....E. Kratochvil
 Gate.....A. D. Acers
 Gate.....U. G. Coon
 Gate construction.....T. K. Young
 Gear jig.....M. L. King
 Goin breast.....F. L. Cowan
 Glass bottles or other vessels. Machine for manufacturing.....C. Leistner
 Globe.....S. O. Richardson, Jr
 Globe holder.....F. A. Wensing et al
 Golf club.....C. E. Clark
 Grain drill.....D. A. Moon
 Grinding machine.....H. Kenyon
 Grinding mill.....L. E. Gaiser
 Grinding picker cylinder teeth. Machine for.....J. K. Proctor
 Gudgeon.....O. Olson
 Gunnery correcting device. Automatic.....E. W. Hubbard
 Gutter cleaner.....M. C. Cowles
 Hammer. Pneumatic.....L. J. Clossey
 Handle bar.....R. F. Mouahan
 Harness attachment.....A. Arter
 Harvester. Cotton.....A. Campbell
 Harvesting machine. Corn.....C. E. Clouse
 Hat stand attachment.....G. M. Moorcroft
 Hay carrier.....F. M. Yentzer
 Hay loader and stacker. A. F. & W. A. Snyder
 Heating air.....H. Pauling
 Heating and ventilating system P. K. McMinn
 Heating apparatus. Hot water.....A. B. Reck
 Heating apparatus. Steam.....J. Collis
 Heating by steam. Apparatus for regulating the circulating in installation for.....A. Heintz
 Hinge.....J. A. Wells
 Hoe.....A. Abraham
 Hoisting and conveying apparatus T. S. Miller
 Horse hoof moisture pad.....J. T. Jennings et al
 Horseshoe pad plate.....G. Knapp
 Horseshoe. Soft tread.....C. B. Taylor
 Hydraulic engineering device.....D. J. Feuerloscher
 Hydraulic press.....E. Dor Delatree
 Hydrocarbon burner.....G. E. Whitney
 Hydrocarbon burner and water feed therefor.....E. G. Mumery
 Indicator.....C. E. Hawkins et al
 Induction apparatus.....G. M. Christoph
 Insect exterminator.....J. C. Franklin et al
 Kinetoscope. Projecting.....W. W. Ladd
 Knitting machines. Adjustable cam for circular.....W. T. Barratt
 Lace hook. Shoe.....J. P. Bergeron
 Ladder. Step.....2 pats. A. P. Boyer
 Lamp burner.....W. A. Heelas
 Lamp circuit switch. Arc.....R. H. Henderson
 Lamp. Electric arc.....L. E. Safford
 Lamp. Electric arc.....H. Bremer
 Lantern frame.....R. J. Kelley
 Lasting shoes.....W. F. Fowler et al
 Lathe.....W. L. Cheney
 Leather splitting machines. Sectional ring frictional roller for.....J. W. Deckert
 Leg or support. Metallic.....H. F. Keil
 Level.....P. M. Walsh
 Liquid dispensing vessel.....L. G. Langstaff
 Lock.....D. R. Reeve
 Lock.....H. Alrutz et al
 Lock attachment. Cylinder.....C. O. Noack
 Loom box motion.....W. A. Fowler
 Loom filling end clearer.....A. E. Benson
 Loom. Filling replenishing.....B. Crossley
 Loom stop motion.....G. Goodline
 Loom weft fork and weft fork grid. Weaving.....T. Pickles
 Lubricating device.....B. F. Campbell et al
 Lubricating wheel flanges. Device for.....J. H. Miner
 Magnet coil.....A. Schweitzer
 Magnet. Lifting.....S. Piek
 Mail bag.....J. C. Lighthouse
 Mail crane.....R. L. Hardwick
 Manure pulverizer. Barnyard.....D. Upton
 Massage appliance.....C. Rigola
 Metal bars. Machine for twisting flat.....G. Sandblom
 Metal. Etching.....J. B. Davidson

Metal leaf beating machine.....H. E. Grabau
 Metal rods. Apparatus for removing scale from.....E. Boley
 Metal wheels. Making.....G. E. Tuffley
 Metallic tie and rail fastening.....H. B. Burke
 Methylchlorid. Apparatus for making.....M. E. Douane
 Milking machine. Cow.....W. S. Howell et al
 Mills, &c. Roller support for use in.....W. Bartlow
 Milling cutter.....T. Eynon
 Molding machine.....E. L. Stevenson
 Mud guard.....M. L. Cooney
 Music leaf turner.....E. L. Gage et al
 Music rack.....C. E. Williams
 Music recording machine.....J. Bunzl-Federn
 Music scale.....A. S. Seville
 Musical instrument.....H. E. Hibshman
 Musical instruments. Contact device for electric self playing.....I. B. Smith
 Musical instruments. Sound regulator for autophonic.....C. Gelnay
 Muzzle. Dog.....W. H. Dusenbury
 Nail extractor.....G. & H. A. Hovenden
 Nursery gate.....C. H. Wright
 Nut and bolt. Lock.....J. R. Elder
 Nut lock.....L. C. Amberson
 Nut wrench.....J. M. Briscoe
 Oil supply indicator.....J. Meehan
 Ordnance.....J. E. Sheriff et al
 Ore leaching apparatus.....W. S. Jones
 Ore screen. Shaking.....J. A. Traylor
 Ores. Concentration of minerals from.....A. E. Cattermole et al
 Ores from gangue. Separation of the metallic constituents of.....A. E. Cattermole
 Organ attachment. Pipe.....N. Olsson
 Package. Candy.....D. J. O'Brien
 Packing.....A. L. Cole et al
 Packing case. Folding.....O. Clawson
 Paper machine. Cylinder.....J. R. Kennett
 Paper pasting machine. Wall.....M. A. Roberts
 Paper stock filter.....C. Tittel
 Paper with glue or other suitable pasting material. Machine for providing sheets of.....W. Kellner
 Pavement composition.....E. I. Allison
 Peanut picking machine.....W. R. Jones
 Peeling machine. Potato.....A. de Bonneville
 Pencils or the like. Apparatus for sharpening.....H. F. Hambruch
 Phonograph cylinders. Making.....A. Haug
 Phonograph, graphophone, &c C. J. Rawlinson
 Photographic objective.....F. Urban
 Photographicsquegee pad A. W. Sanderson
 Piano hammer.....C. W. Stephenson
 Pick handle, &c. fastening.....T. Poling
 Pile driver.....W. H. Warrington
 Pipe. Forming.....C. B. Stravs et al
 Pipe forming apparatus.....C. B. Stravs et al
 Pipe, &c. in continuous lengths. Apparatus for forming.....C. B. Stravs et al
 Pipe in continuous lengths. Forming.....C. B. Strave et al
 Planter. Corn.....J. J. Hesser
 Plumb and leveling glass.....C. J. Knighton
 Plumb bob.....C. J. Caley
 Pneumatic despatch system sending device.....B. C. Batcheller
 Pocket knife.....W. W. Ck
 Pocket lock.....D. J. Buckley
 Portable elevator.....T. J. McCarthy
 Portable light.....C. Hubert
 Powder puff.....J. H. Louder
 Powder rod drying apparatus.....E. Gathmann
 Power. Machinery for the transmission of mechanical.....W. Koller
 Power transmission device. Regulatable.....F. V. Whyland et al
 Power transmission device. Variable speed.....W. F. Howe
 Power transmitting mechanism.....C. C. Vaughn
 Precious metals. Apparatus for recovering.....J. Tunbridge
 Pressure register.....G. W. Kellogg
 Pressure regulator.....W. W. Benson
 Printing and embossing surfaces. Making intaglio.....J. W. McLeod
 Printing apparatus.....R. Herman
 Printing machine. Blue.....R. Herman
 Printing press bed motion.....G. P. Fenner
 Pruning shears.....T. L. Taylor et al
 Pulley. Frictional clutch.....G. S. Tiffany et al
 Pulp machine suction device.....J. L. Youngs
 Pump coupling. Windmill.....J. E. Lester
 Pump. Multiple feed lubricating.....E. Haynes
 Pump regulator. Automatic power.....F. E. Reed
 Pumping engine. Compound duplex.....A. F. Cavanaugh
 Punch stripper.....J. V. W. Reynders et al
 Push button casing. Electric.....H. F. Keil
 Putty knife.....J. O. Hall
 Puzzle.....C. Henry
 Puzzle.....B. E. Clarkson
 Radiator. Sheet metal.....W. R. Kinnear
 Rail coupling.....A. Barnes
 Rail joint.....L. A. Bundy
 Rail joint.....H. L. Rogers
 Rail joint.....R. Caha
 Rail joint.....G. B. Hunter
 Rail joint plate.....J. S. Hoerner
 Rail joint shoe and clamp.....J. B. Anderson
 Rails to cross ties. Means for securing track.....W. P. Phenix
 Railway construction.....I. W. Kifer et al
 Railway crossing.....G. W. Lancaster
 Railway electrical distribution system. Electric.....2 pats. J. H. Hallberg
 Railway gate.....G. W. Thorn
 Railway gate.....J. Lacy et al
 Railway passenger vehicle.....G. Gibbs
 Railway. Pleasure.....D. M. Riddle et al
 Railway rails. Device for applying for signals to removing them from, and indicating their position on or off.....T. Templeman et al
 Railway. Scenic.....C. D. Cooper
 Railway signaling device.....R. Avery
 Railway tie plate.....W. F. Gould
 Reamer.....J. Smith
 Reciprocating engine.....C. King
 Refrigerator attachment.....A. J. Chaffin
 Registering apparatus.....H. Hollerith
 Resistance. Variable inductive.....T. B. Kinrade
 Rheostat.....H. H. Cutler
 Rheostat.....W. L. Schmidt
 Rheostat.....C. H. Keeney et al
 Rheostat. Automatic.....R. J. Louis
 Rivet set locking device.....W. C. Lippert
 Robe holder.....N. Livingston
 Rock drill valve.....T. J. Murphy

Roof anchoring device.....W. Small
 Rotary engine.....W. Wyand
 Rotary engine.....W. F. R. Mist
 Rotary engine.....E. S. Higgins
 Rotary motor.....J. Osvetinsky
 Rubber heels. Making.....R. E. Foster
 Sad iron holder.....M. A. Tolin
 Safe alarm. Mechanical.....E. Rebuschung
 Safety pin.....F. A. Forsbeck
 Sand blast machine.....G. R. A. Gutmann
 Sand hopper mechanism for tramway vehicles, &c.....J. Griffiths
 Sander. Pneumatic.....J. Farley
 Sash fastener and burglar alarm.....B. T. Kavanaugh
 Sash fastener and tightener. Adjustable.....N. S. Hillyard
 Saw carriage power set work.....R. W. Tullock et al
 Sawmill set works.....T. S. Wilkin
 Sawing apparatus.....V. Plaff
 Scale. Weighing.....J. E. Cochran
 Screw threading die.....A. J. Smart
 Seal. Sheet metal.....F. W. Brooks
 Sealing cap. Bottle.....A. A. Wood
 Search light projector. Protective disappearing platform for.....E. H. Schulz
 Sewer trap.....W. Hunt
 Sewing machine for forming groups of stitches.....J. J. Sullivan
 Sewing machine hemstitching attachment.....G. W. Freeman
 Sewing machine needle.....W. Y. A. Boardman
 Sewing machine. Zigzag stitch.....L. Bulasky
 Shade cord attachment. Window.....A. H. Redheffer
 Shade roller attachment. Spring.....E. F. Hartshorn
 Shaft coupling.....C. R. Meston
 Shaft shackle. Vehicle.....S. R. Bailey
 Shaft supporter. Vehicle.....I. D. Cady
 Sharpener. Knife.....P. J. Neerup
 Sharpening attachment. Cutting tool.....F. Watkins
 Sharpening machine. Twist drill.....J. J. Dahl
 Shear mechanism.....S. V. Huber
 Shears.....C. O. Bergmark
 Shelf for lockers, &c. Adjustable.....G. Holden
 Shoestring fastener.....H. O. Stubbs
 Shoe tree or stretcher.....F. Drew
 Sickle bar attachment.....S. A. Hartman
 Sign.....U. B. Stuart
 Signaling system. Electric.....H. W. Souder
 Slack adjuster.....P. Hien
 Slag. Granulating.....J. G. McDowell
 Smoke house.....J. J. Yuncher
 Sole fastener. Shoe.....J. P. Wakefield
 Sound box. Convertible.....V. H. Emerson
 Speed indicator.....C. G. B. Holman
 Spindle lubricating means.....J. Bodden
 Stair tread.....A. A. Spadone
 Stalk rake.....N. B. Gamble
 Staple feed device.....W. McMurray
 Steam superheater.....F. Burger et al
 Steamer. Domestic.....W. Ashert
 Stoker. Mechanical.....V. Bachman
 Stone building block. Artificial.....E. L. Brownson
 Stone. Composition for use in producing artificial.....J. C. McClenahan
 Stoue. Manufacture of artificial.....C. Rubitschung
 Stove.....T. A. Doughty
 Stovepipe cleaner.....W. J. Yeoman
 Stovepipe elbow.....H. W. Smith
 Street sweeper.....J. H. Baragar
 Stripping tool.....D. G. Terryberry
 Switch mechanism.....C. E. Irwin et al
 Switch stand.....A. A. Strom
 Syringe nozzle.....H. M. Clarke
 Tabulator.....C. A. Joerissen
 Tag. Laundry.....H. Higgin
 Tanning.....J. M. Brown et al
 Telegraph system. Multiplex.....H. Shoemaker
 Telegraphy. Submarine.....I. Kitsee
 Telephone attachment.....H. G. Addie
 Telephone exchange busy signal.....J. L. McQuarrie
 Telephone service meter.....F. R. McBERTY
 Telephone system.....C. Adams-Randall
 Telephone system.....J. G. Roberts
 Telephone system. Party line.....W. Parker
 Telephone toll apparatus.....G. A. Long
 Telephone transmitter mouthpiece.....A. B. Cruickshank
 Telephone transmitter sanitary attachment.....H. Baethig
 Telephony. Apparatus for wireless S. Musits
 Tent cottage.....J. R. Parks
 Thermo-electric alarm.....A. Haslinger
 Thimble attachment.....F. Ludwigen
 Ticket case.....L. M. Hopkins
 Tile press.....W. R. Cunningham
 Time check. Watchman's.....G. Stockton
 Tire fastening. Massive.....W. Struck
 Tire fastening. Vehicle.....J. W. Farnoff
 Tire. Inflatable vehicle.....J. W. Farnoff
 Tire. Vehicle.....2 pats. A. H. Marks
 Tire. Vehicle wheel.....C. C. Worthington
 Tire. Wheel.....A. H. Marks
 Tool holder.....L. C. Wilcox
 Tooth facing for bridgework or gold plates. Detachable.....M. L. Leob
 Track raga.....O. Bohn
 Transfer table.....A. Nelson
 Trav. Revolving.....A. Bruebach
 Trolley. Electric.....T. Euphrat
 Trolley pole.....A. L. Prentiss
 Trolley pole.....J. L. Young
 Trolley wire holder.....F. M. Zimmerman
 Truck. Car.....2 pats. J. C. Wands
 Tub hoop.....A. Clausung
 Tuning hammer.....J. Erlandsen
 Turbine cooling means. Gas.....H. F. Fullagar
 Turbine. Steam.....J. W. Smith
 Turbine. Steam.....C. O. Richter
 Twine holder.....J. C. Jacoby
 Typewriter automatic ribbon reverse.....D. L. Ford
 Type writer spacing attachment W. A. Lyman
 Type writing machine.....A. T. Brown
 Type writing machine.....O. Woodward
 Type writing machine, &c.....2 pats. T. Cahill
 Umbrella stand.....E. Pratt
 Valve.....P. Hoon et al
 Valve. Air brake operating.....A. Gottschalk
 Valve. Boiler feed.....T. J. Genlack
 Valve. Distributing.....F. Burger
 Valve gear. Reversing.....E. Belknap
 Valve mechanism. Motor driven.....E. G. Howard

Valve motor disconnecting mechanism..... E. G. Howard
 Valve, Motor driven..... E. G. Howard
 Vehicle attachment, Motor..... H. Hayes
 Vehicle jack..... L. A. Casgrain
 Vehicle, Motor..... C. Schmidt
 Vehicle top rest..... E. G. Martin et al
 Vehicle weight holder..... J. Ayling
 Vehicles, &c. Elevated platform or support for motor..... W. C. Owen
 Vending apparatus..... J. C. Copeland
 Vending machine..... F. F. Davidson
 Vending machine..... J. Heberling
 Vending machine, Automatic..... W. R. Thompson
 Viscous substances, Machine for working..... J. H. Volkman
 Vise..... J. Dodge
 Voting machine..... E. F. Chapman
 Voting machine air check..... B. T. Seelye
 Wagon bed..... M. Roeh
 Wall and ceiling covering..... H. G. Dietrich
 Wall mold, Hollow..... W. E. Hibbard
 Washer..... C. G. Ette
 Washers, Making..... A. Sank
 Water seal trap..... R. P. Cowhig
 Water supply system..... R. P. Henry
 Weaner, Calf..... A. N. Sorenson
 Weighing mechanism for vehicles, &c..... C. Skidmore
 Weight sealing apparatus..... C. B. Carr
 Well drilling machine..... A. T. Wilson
 Well making machinery, Portable..... C. E. Glenn
 Whip cracker connection..... M. O. Felker
 Whip socket and rein holder, Combined..... I. D. Cady
 Whip socket, Locking..... A. Neilson
 Winding machine, Cop..... W. E. Hooper
 Window with sliding sashes..... P. Kupelwieser
 Wire coil envelop..... H. C. Boyle et al
 Wire cutter..... E. A. Ironside
 Wire working implement..... J. Hamel et al
 Wire working tool..... A. M. McLeran
 Wire working tool, Combination..... A. M. McLeran
 Wrench..... J. N. Noyer
 Wrench..... C. J. Stiehl
 Wrench..... R. Vrooman
 X-ray tube..... R. Friedlander

DESIGNS.

Advertising label... 3 pats..... W. J. Dietrich
 Award ribbons and declarations, Blank for official..... M. J. Lowenstein
 Braid..... A. H. Grossenbach
 Gas burner..... J. Lederer
 Pattern, Arabesque..... E. L. Denny

Issued December 20, 1904.

MECHANICAL PATENTS.

Accordion lock..... H. A. Price
 Acid, Producing salts of hydrosulfurous..... A. Frank
 Air brakes in case of emergency, Device for automatically applying..... C. Parker
 Alarm..... D. B. Coates
 Aluminium, &c. Reducing..... H. S. Blackmore
 Automobile..... V. Link
 Automobile sled..... F. Walter
 Awl, Sewing..... A. M. Parker
 Axle, axle tree or the like, Crank..... C. H. T. Brink
 Balls, Manufacture of golf..... C. T. Kingzett
 Bandage supporter, Catamenial..... L. B. Greenun
 Barber's chair..... F. De Fontes
 Barn construction..... J. J. Duttweiler
 Barrel, Collapsible..... A. A. Weeks
 Barrel head fastening..... C. E. Fay et al
 Basin holder..... O. R. Applegate
 Battery..... N. M. Watson
 Bearing, Fluid pressure..... J. W. Macfarlane
 Bearings, Device for excluding dust from..... E. Einfeldt
 Beater, mixer and masher..... S. B. Hillman
 Beet or cotton thinner..... L. H. Ireland
 Belt cleaner and lubricator..... J. B. Hall
 Belt shifter..... C. Gelnay
 Bicycle lock..... J. Hirschenfeld
 Billets, Manufacture of..... W. B. Hughes
 Bit brace jaws..... J. P. Bartholomew
 Body loop..... M. Woodhull
 Boiler fire box..... R. Scheliga
 Boiler tube expansion plug..... G. Peterson
 Boilers, Tubular fire box for steam..... W. N. Best
 Bolster, Body..... G. G. Floyd
 Bolt..... 2 pats..... E. A. Moore et al
 Bolt thread cutter and wrench, Combined..... E. L. Coddington
 Book, Loose leaf..... G. H. Manger
 Bolt, Loose leaf..... W. E. Jenkinson
 Book, Loose leaf..... W. P. Pitt
 Book, Manifolded check..... J. H. Vesey
 Booking apparatus..... A. Shedlock
 Boring bar..... W. N. John
 Bottle capping machine head..... G. H. Gillette
 Bottle case and carrier..... R. Baermann
 Bottle making machine..... J. Conde
 Bottle stopper retaining device..... A. McTernan
 Brake shoe key blanks, Machine for making..... G. Fraser
 Brake shoe keys, Manufacturing..... G. Fraser
 Bread..... W. Biber
 Brick composition, Fire..... J. Anderson
 Briquet drier, Continuous..... C. M. Avery
 Buckle, Cross line..... L. E. Crandall
 Buckle for harness, Pad skirt..... W. A. Heiss
 Building block..... G. Ferguson et al
 Burner..... J. D. Green
 Burner cap..... A. S. Lyhne
 Calculating machine..... J. Mallmann
 Can controlling and separating apparatus..... O. S. Fellows et al
 Can opener..... Z. A. Church et al
 Canister..... C. A. Norvell
 Canopy support, Turnback..... I. E. Palmer
 Car bumper..... W. V. Johnson
 Car coupling..... F. Kaltenbach
 Car door fastener..... F. J. Lerch
 Car door, Sliding..... A. W. Sullivan et al
 Car haul..... L. J. Robb
 Car life saving attachment, Motor..... B. Lev
 Car, Mine..... J. B. Bell
 Car part and making same..... E. I. Dodds
 Car, Passenger..... H. Romfuuder
 Car, Poultry..... W. H. Judson et al

Car step, Extension..... J. A. Halbrook
 Car switch mechanism, Street..... J. H. Fitch
 Cars, Cushioning device for safety attachments for..... B. Lev
 Cars, Flexible roller for safety attachments on motor..... B. Lev
 Carbureter..... F. J. Lothammer
 Carpet fastener..... C. R. Shaffer
 Carriage, Doll's or child's..... M. B. Lloyd et al
 Carriage, Storm..... S. K. Landis
 Cash register..... R. P. Thompson
 Cashier, Mechanical..... I. S. Dement
 Catamenial appliance..... H. E. Scott
 Chair..... F. De Fontes
 Chair foot rest..... G. W. Archer
 Chair foot rest..... S. B. Saffel
 Chair ratchet, Automatic reclining..... A. Pavlish
 Check controlled apparatus..... A. Satterfield
 Check, Non erasable..... B. Franklin, Jr. et al
 Cigarette machine..... J. Paul et al
 Clevis..... O. O. Bergh
 Clock, Alarm..... W. E. Porter
 Clock electromotive device..... D. Perret
 Clothes line pulley..... E. Des Noyers et al
 Clothes line reel..... J. J. Walter
 Clothes line reel..... A. R. Stevens
 Clothes line stretcher..... C. Kirkbride
 Clothes pin..... E. W. Sayle
 Clothes pounder..... R. S. Sheldon
 Cluster socket..... J. H. Dale
 Clutch..... F. J. Lemley
 Clutch, Starting..... J. F. Wilkinson
 Coal briquets, Making..... J. W. Barnes
 Coffee scouring and polishing machine..... C. Abele
 Collapsible box..... C. F. Ramsay
 Collar, Horse..... H. A. Fontaine
 Collar stretching machine..... J. A. Taylor
 Composition..... H. J. Livingston
 Concentrator..... W. L. & F. S. Card
 Control system..... E. R. Carichoff
 Converter, Reversible..... C. Raapke
 Conveying apparatus..... T. S. Miller
 Cooler or condenser, also applicable for use as heater or evaporator..... J. Grouvelle et al
 Corn husking machine snapping rolls..... L. Holland-Letz
 Corn silker..... F. S. Utery
 Cotton picking apparatus..... B. R. Heyward
 Couch, Extensible box..... F. Linsmayer
 Coupling device, Auxiliary..... S. G. Thomson
 Coupling shank..... J. J. Hickey et al
 Culvert..... C. W. Carter
 Cupel..... J. C. Fox
 Curtain fixture..... H. H. Forsyth
 Curtain fixture..... E. E. Whitmore
 Cut-off actuating mechanism..... P. B. Clarke
 Cycle hub..... E. Sachs
 Cycles, Motor..... E. Robion
 Cycles, &c. Adjustable throw crank for..... J. Ritscher
 Cylinder lubricator..... C. B. Allen
 Dehorning implement, Cattle..... J. H. M. Forck
 Demijohn..... W. E. Brown
 Dental separator..... R. Walker
 Derrick and excavator Combined..... C. Bishop
 Diamond cutting machine..... J. de Miniszewski
 Display article..... H. Wilcox
 Display card holder..... F. W. Bird
 Display card holder..... C. C. Goetz
 Display card, Jewelry..... T. Webster et al
 Distribution system..... J. B. Taylor
 Door operating appliance..... F. L. Brewer
 Draft tree..... H. T. Reeder
 Drafting instrument, Isometric..... P. Barnes
 Drawers supporter..... I. Blum
 Drier..... J. J. Murphy
 Dust arrester..... G. A. Sager
 Dye and making same, Athraquinone..... E. Hepp et al
 Dye, Compound..... L. H. Dehoff et al
 Dynamo for train lighting..... J. F. McElroy
 Educational chart exhibitor..... M. Wilson
 Egg case..... O. Phillips
 Egg case, Folding..... A. Brockschmidt et al
 Electric battery..... W. H. Gregory
 Electric discharges, Device for projecting air against..... E. E. Werner
 Electric furnace..... A. M. Howe
 Electric machine brush holder, Dynamo..... E. Woehr
 Electric motor controlling system..... H. H. Cutler
 Electric switch..... W. J. Murray
 Electric switch..... W. J. Lloyd et al
 Electrical machine, Static..... C. F. Birtman
 Electricity meter..... A. Blanchet
 Electromagnetic apparatus for operating reciprocating mechanisms..... J. Feingold
 Electromotors and for regulating purposes, Apparatus for automatically starting..... J. J. Thoresen
 Elevator bin..... J. A. Jamieson
 Elevator hoisting mechanism..... H. Rowntree
 Enameled plates in position, Means for securing..... B. Banning
 Engine..... T. Officer
 Engine controller, Steering..... J. M. Gray
 Engine ignition dynamo, Gas..... J. Reek
 Eraser cleaner..... W. Collis
 Eyeglass fastening..... F. Michel
 Eyesight testing device..... W. H. Ely
 Fabric handling mechanism..... C. J. Bellamy
 Fares by ticket, System for collecting railway..... R. F. Carr
 Farm gate..... A. M. Hall
 Fastening device..... E. Perlich
 Faucet, Self-closing..... W. Webber
 Feather treating machine..... F. E. Huehn
 Fertilizer distributor..... E. J. Corser
 File case, Account book..... B. Fiala et al
 File, Document..... T. E. Brown
 Fire escape..... O. Lampe
 Fire extinguishing apparatus, Automatic..... J. Fiddes
 Fluid from saturated material, Device for extracting..... W. S. MacHarg
 Fluid pressure brake..... A. A. Kent
 Foot rest..... A. P. Talliaferro
 Forceps..... I. O. Mullison
 Foundry oven..... J. Elsnor
 Frying machine, Cruller..... J. Harrison
 Furnace..... W. Simpkin
 Furniture pad..... L. Staples
 Gallery lift tubes, Making..... W. A. Painter
 Garment hanger..... J. A. Carlson
 Garment supporter..... W. B. Streeter
 Gas, Apparatus for the manufacture of..... H. S. Elworthy

Gas burner..... J. S. Briggs et al
 Gas danger signal, Automatic..... P. A. Kettering
 Gas engine..... A. M. Sweder
 Gas fitting or stove..... H. H. Clark
 Gas generator, Acetylene..... T. E. Lewis
 Gas, Making..... V. G. Apple
 Gases, Apparatus for the treatment of..... E. E. Werner
 Gases from air, Generating..... E. E. Werner
 Gate..... E. J. Ingwersen
 Gates, Fastener and tension device for frameless..... P. Mast
 Gear, Reversing..... F. C. Hirsch
 Gear, Variable speed..... C. Monin
 Gin attachment, Saw..... S. W. Power
 Girders for structures of cement, concrete, or the like, System of metallic..... G. A. Parent
 Glass cpter..... N. Fells
 Glass, Making translucent opal..... J. Kempner
 Glass shaping apparatus..... D. C. Ripley
 Glassware making machine..... C. M. Zure
 Gold separator..... T. Pollock
 Governor cut off, Steam engine..... H. Damerell
 Gown, Nursing..... R. T. Coyle
 Grain binder, Duplex..... P. P. Collier
 Grain decorticating and grinding machine..... J. H. F. L. Hartmann
 Grain drill..... E. J. Case
 Grate..... H. F. Langenhof
 Grate..... 2 pats..... J. Demarest
 Grate bar..... H. Budd
 Guns, Single trigger for double..... J. J. Murphy
 Halogen tertiary butyl alcohol, Making..... T. B. Aldrich et al
 Hammer..... A. G. Witmer
 Hammer, Electric..... W. F. Wagner
 Hammock and hammock chair, Convertible..... H. A. Randall
 Handle end piece and loop..... T. J. Moore
 Harrow or cultivator tooth fastener..... C. H. Butts
 Hat clasp..... C. F. Carlson
 Hat head rest..... F. Jaeger
 Hay loader..... H. Siegert
 Hay rake and stacker..... O. B. Mann
 Heat, Device for effecting the radiation of..... R. B. Hanscom et al
 Heater..... P. Doran
 Heating apparatus for buildings, Hot water..... A. H. Freericks
 Heating furnace..... J. H. Haskins
 Hinge, Blind..... J. H. Poole
 Hinge, Double acting spring..... O. E. Hallin
 Hitching device..... G. K. D. Holland
 Hoist controlling mechanism..... J. J. Jordan
 Hoisting apparatus..... W. H. Jessup
 Hoisting mechanism safety device..... W. Burkart et al
 Hoop end fastener..... J. P. Chaplin
 Horseshoe..... J. Messinger
 Horseshoe..... J. M. Loper
 Hose supporter..... C. J. White
 Hulling machine..... N. E. Alman
 Humidifier or air moistening apparatus..... S. W. Cramer
 Hydraulic press..... O. Philipp
 Hydraulic pressure apparatus..... J. W. Bramwell
 Hydrocarbon burner..... E. T. Curran
 Hydrocarbon burner..... O. D. Armstrong
 Hydrocarbon furnace..... E. W. Jackson
 Hydrogen generator..... H. S. Elworthy
 Ice cutting machine..... F. J. Reinhold
 Indicator connecting snap, Automatic..... E. G. Taylor
 Injector..... M. Erfurt
 Insulated joint..... G. A. Weber et al
 Insulator, Electric..... C. Booker
 Iodoxy compound and making same..... A. Liebrecht
 Irrigating machine..... W. W. Smith
 Jar or glass closure..... J. Bonig et al
 Jaw coupling..... L. Jr., & L. Scheib, Sr.
 Kiln..... R. Booth et al
 Knitting machine striping attachment, Circular..... W. T. Barratt
 Ladle..... R. H. Stevens
 Lamp..... J. C. & J. W. Aschenbach
 Lamp and switch, Incandescent electric..... G. Sweetser
 Lamp bulb base, Electric..... G. P. McDonnell
 Lamp burner, Tubular wick..... W. C. Quigley
 Lamp cover, Automobile..... H. S. Tompkins
 Lamp lighting system, Hydrocarbon..... G. Washington
 Lamp or stove for lighting or heating purposes..... J. A. Martin
 Lamps, Means for igniting street or other..... P. D. Muylwyk
 Lap robe..... L. H. Wilkes
 Lasting tacks, Machine for pulling..... H. Lyon
 Latch..... C. A. Paul
 Leaf turner..... F. Hoffman et al
 Ledger..... J. Barker
 Ledger or binder..... J. Barker et al
 Level, Spirit..... 2 pats..... D. A. James
 Leveling rod..... W. B. Shropshire
 Lever, Lock..... W. S. Graham
 Lifting jack..... W. Terry
 Liquids, Apparatus for heating or sterilizing..... J. Willmann
 Lock..... J. H. Dieringer
 Lock locking device, Permutation..... F. Dnesterswald
 Locomotive..... E. D. Priest
 Locomotive, Electric..... E. D. Priest
 Loom warp stop motion..... A. A. Johnson
 Lubricator..... J. H. Tomlinson et al
 Mail box, &c..... M. B. & H. S. Mills
 Mailing tube..... F. W. Bettis
 Mandrel for cone winders, Expanding..... R. B. Easton
 Marble shooter..... A. Kjellman
 Marker, Land..... J. Millar
 Measure, Tape..... L. Obermeier
 Measuring and delivering material, Machine for automatically..... J. Kellington
 Medical or like capsules, Apparatus for the manufacture of..... R. Paul
 Memorandum receptacle..... W. L. Lindsley
 Metal bender..... J. H. Van Derbilt
 Metals, Apparatus for indicating the magnetic condition of heating..... G. W. Sargent
 Meter..... A. Fleeger
 Meter..... F. P. Cox et al
 Mine gate..... N. K. Bowman
 Miter and saw guide, Hand..... H. S. Dotts
 Mixing mill, Rotary..... A. & A. Simon
 Molder's box..... W. J. Wood

Mortising machine, Hand..... J. J. Jr., T., & G. E. Bradbury
 Motion transmitter..... E. J. Christie
 Motor starter..... E. R. Carichoff
 Mower divider shoes, Swath board for..... L. M. Jones et al
 Mowing machine grain lifting attachment..... M. Kane et al
 Music chart..... F. C. Kruschke
 Music roll for mechanical musical instruments..... 2 pats..... G. B. Kelly
 Music sheet..... F. Taft
 Musical instrument tuning head..... W. Henzi
 Nail making machine..... E. Perkins
 Neckwear..... W. H. Hart, Jr.
 Net, Fly..... W. Erdmann et al
 Nut and bolt lock..... R. E. Burks
 Nut lock..... M. Graffins
 Nut lock..... J. W. Todd et al
 Oat hulling machine..... D. W. Brown
 Oil burner..... V. F. Lassoe et al
 Oil can..... R. P. Frazer
 Oil cup..... C. F. Tucker
 Ordnance breech mechanism..... A. T. Dawson et al
 Ore concentrator..... I. A. Cammett
 Packing..... J. Baderker
 Pail cover..... G. J. Johnson
 Paint mill scraper device..... F. J. Farrell
 Paper holder, Roll toilet..... W. T. Sterling
 Paper, &c. Machinery for cutting and folding..... E. H. Cottrell
 Paper, &c. perforating machine..... R. T. Brooks
 Paper surface finishing machine..... C. W. Gay
 Paper weight, pencil sharpener, &c. Combined..... C. A. Root
 Paraffining machine..... F. Ladewig
 Pattern..... A. Muellerweiss
 Pavements for roads, &c..... F. J. Nash
 Pencil sharpening machine..... J. A. Jones
 Photographic developing apparatus..... W. Thomas
 Photographic negatives for the gelatin relief process, Apparatus for making..... P. Brosig
 Photometric apparatus..... E. Thomson
 Piano sounding board..... C. B. Clemons
 Pipe wrench..... M. L. Biehler
 Pipe wrench..... J. J. Layton
 Placket fastening..... H. D. Stimson
 Plaiting machine..... N. De Witta
 Planter..... J. D. Schofield
 Planter..... H. J. Cordle
 Planter, Check row corn..... J. B. Carter
 Planter, Corn..... F. P. Callahan
 Planter, Corn..... G. E. Muth et al
 Plow, Wheel..... H. H. Boenker
 Pneumatic despatch tube apparatus..... E. A. Fordyce
 Pneumatic tube upward discharge terminal..... D. H. Jackman
 Potato digger..... J. & W. Reuther
 Press wheel, Gang..... W. Fetzner
 Printing and stamping press, Color..... F. Momm
 Printing machine..... C. W. Foughion
 Printing machine register device..... E. J. Falls et al
 Pulley, Adjustable..... W. P. Gray
 Pulverizing machine..... S. H. Hughes
 Pulverizing mill..... A. J. Sackett
 Pump..... 2 pats..... J. Willmann
 Pump..... S. Sears
 Pump..... E. Frei
 Pump, Hand..... C. W. Manzel
 Pump, Metal..... C. Velliro
 Pump stand..... J. M. Allen
 Punching or other machines, Detachable key bank for..... M. C. Indahl
 Pyrites, Apparatus for treating..... W. B. Simons
 Radiator tubes, Machine for making..... F. H. Stolp
 Rag picker..... L. Bredannaz et al
 Rail heating furnace, Portable..... G. A. A. Culin
 Rail joint..... P. Peterson
 Rail tie..... J. Heltzel
 Railway bond..... H. M. Bellows
 Railway gate..... E. Whitaker
 Railway grip, Cable..... W. O. Gunkel
 Railway switch..... G. M. Riley
 Railway switch..... F. C. Carroll et al
 Railway switch, Automatic..... C. Lee
 Railway tie..... W. W. Fowler
 Railway tie..... R. B. Campbell
 Railway tie..... V. E. Randall
 Railway track structure..... J. M. & J. W. Kincaid
 Razor stropper..... A. H. Fleming
 Refrigerator..... G. Geraci
 Rein holder..... T. Bond, Sr.
 Rice hulling and decorticating machine..... R. W. Welch
 Rifle back sights, Wind gage for..... J. B. Thorneycroft et al
 Rivet or stud, Tubular..... G. H. Brabrook
 Road or pavement..... 4 pats..... F. J. Nash
 Rope or cable clamp..... J. P. Krebs
 Rotary engine..... W. I. Phifer
 Rotary engine..... S. Mackin
 Rotary engine, Compound..... D. C. Wiest
 Rotary explosive engine..... W. I. Spangler
 Rotary motor..... J. M. Benjamin
 Rubber boot or shoe..... H. C. Mason
 Rule, Folding..... C. S. Evans et al
 Sad iron folding device..... W. Strauss
 Safety pin..... E. T. Poole
 Sap spout and cover..... G. H. Grimm
 Sash fastener, Wedge..... S. S. Bell
 Sawmill hog..... H. G. Dittbenner
 Sawing machine, Wood..... E. D. King
 Screen..... 2 pats..... S. W. Trolor
 Seal, Lock..... A. E. Wilson
 Seal lock..... J. J. Russell
 Seal, Self-locking..... E. Tyden
 Sealing cans, Crimping tool for..... M. Mauran
 Segmental rack..... W. H. Voss

Continued in February number.

Canadian Patents

Canadian Patents may now be obtained by the inventors for any of the mechanical inventions named in the foregoing list, provided they are simple, at a cost of \$30 each. For full instructions address Inventive Age Publishing Co., 918 F Street N. W., Washington, D. C.

Foreign patents may also be obtained in certain other countries.

To Old And New Subscribers Alike.

One Year's Subscription to The INVENTIVE AGE & PATENT INDEX AND WEBSTER'S DICTIONARY

(AS DESCRIBED,)

CARRIAGE CHARGES PREPAID,

BOTH FOR \$2.75

LESS THAN HALF THE PRICE OF THE DICTIONARY ALONE

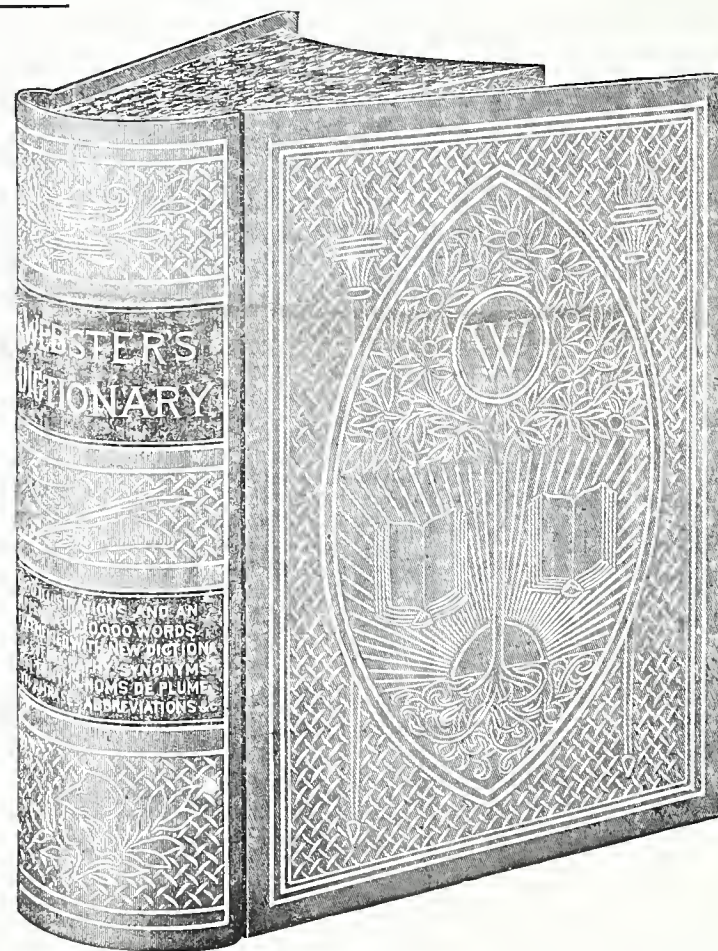
This Dictionary contains every word found in the original Webster's,

IN ADDITION

- | | |
|----------------------------------|---------------------------------|
| (a) An appendix of 10,000 words, | (g) Familiar Allusions, |
| (b) A dictionary of Biography, | (h) Musical Terms, |
| (c) Synonyms and Antonyms, | (i) Heroes of Prose and Poetry, |
| (d) Noms de Plume, | (j) Dictionary of Mythology, |
| (e) Foreign Phrases, | (k) Modern Geographical Names, |
| (f) Abbreviations, | (l) Latin Names, etc., etc. |

THIS IS A GREAT OPPORTUNITY.

Address: **THE INVENTIVE AGE PUBLISHING CO., WASHINGTON, D. C.**



1540 Pages; 1500 Illustrations; Full Library Sheep Binding; Dennison's Patent Index; Size, 4 x 9 x 10 Inches; Weight eight pounds.

A Remarkable Offer. The "POST" SELF-FILLING AND CLEANING FOUNTAIN PEN.



No Filler. No Soiled Fingers. No Lost Time. Simple and Perfect.

IT IS AWAY AHEAD OF ANY OTHER
PEN MANUFACTURED BECAUSE
OF ITS SELF-FILLING AND SELF-
CLEANING FEATURES.

BEING THE ONLY ONE MANU-
FACTURED HAVING THESE
CONVENIENCES.

We will send this famous pen, postpaid, and one year's subscription to "The Inventive Age," for \$2.00.

Every Inventor in the country needs "The Inventive Age," and everyone needs a pen. Here's your chance to get a bargain.

There are many pens on the market, some have been sold for years and are very popular, but we venture to say that all the pens manufactured together have not such a list of recommendations as the "Post" has secured. We have testimonials that a million dollars could not buy. In the list will be found leading men in politics, finance, law, religious movements, literary men, bankers and business men. Men who have never before allowed their names to be used in this way have not hesitated to recommend the "Post" and in terms of praise simply unqualified. Send for list of testimonials.

Pen has gold nib. When ordering state whether a fine, medium or stub point is desired.

Address: **THE INVENTIVE AGE Publishing Co.**
918 F St. Northwest, Washington, D. C.

A New Premium Offer.

WOMAN'S HOME COMPANION.

This magazine is edited and made up in the city of New York, the leading literary and art center of America. It contains the most timely illustrated articles, the most beautiful illustrations, the best short stories, the most popular serial stories, the most practical household departments, the best of everything desirable for a home magazine. It is printed on the finest paper, has 44 to 60 large pages, 11 by 16 inches. The twelve numbers will contain more than one thousand beautiful illustrations. Each month it carries a message of help, profit, pleasure, education, culture and refinement to over two million readers. Its editors and contributors are the most popular American writers. It is altogether the cleanest, brightest, handsomest, choicest and best of the American home magazines.

WOMAN'S HOME COMPANION	One year \$1.00	A total value of
INVENTIVE AGE & PATENT INDEX	One year 1.00	
		\$2.00

BOTH PAPERS ONE YEAR TO ANY ADDRESS
FOR **\$1.25**
ONLY

The above offer applies to new subscriptions only. Send all orders to

THE INVENTIVE AGE PUBLISHING CO.
WASHINGTON, D. C.

A JOURNAL
OF MANUFACTURING
INDUSTRY

THE Inventive Age

AND
PATENT INDEX.

AND SCIENTIFIC PROGRESS.

SEVENTEENTH YEAR.
No. 2.

WASHINGTON, D. C.—FEBRUARY, 1905.

SINGLE COPIES 10 CENTS.
ONE DOLLAR A YEAR.

AN IMPORTANT ADVANCE IN COTTON-PICKING MACHINES.

GREAT interest is being taken throughout the cotton-raising states in a cotton-picking machine recently invented and patented by Mr. George A. Lowry, a well known inventor in machines for forming cotton into cylindrical or round bales.

proven unsuccessful so that, notwithstanding American brains, ingenuity, and money, up to the present time one of our great crops has had to be harvested by the antiquated and expensive method of hand-picking.

Mr. Lowry, appreciating the fact

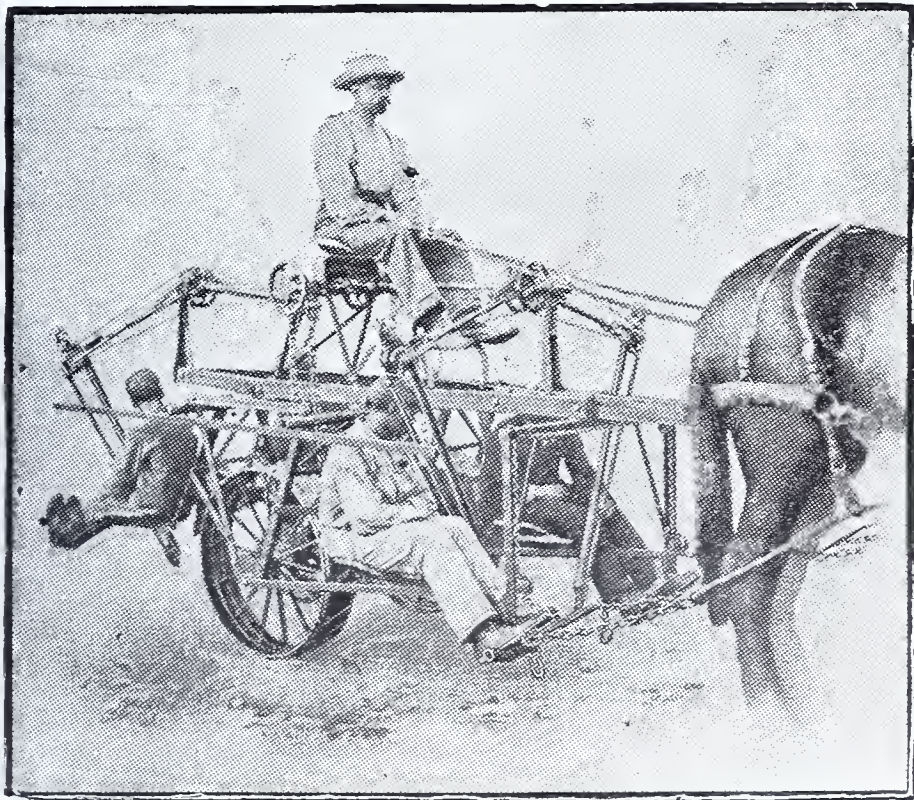
by the machine direct the pickers to the different bolls, whereupon the cotton is immediately secured therefrom, elevated upon the machine, and deposited in suitable receptacles. The result is that, while several operators are required, they are enabled by means of the pickers to do five times the work of an equal number of unaided hand pickers.

Several experimental machines have been constructed, driven by animal and motor power. The accompanying illustrations are of the former, and THE AGE is indebted to The Constitution, of Atlanta, Ga., for the same and for the following descrip-

draught. The simplicity of construction insures its durability.

In addition to all other advantages, it is exceedingly inexpensive, which is a fact of primary importance if its efficiency is destined to compel its universal use.

The machine in detail consists of a pair of traction wheels similar to those used on a mowing or harvesting machine. These wheels run in the furrows on opposite sides of a row of cotton plants. The framework is supported upon these wheels and arches over from one wheel to the other at a sufficient height above the ground so as to clear the tops of a row of plants.



The records of the Patent Office show that for many years inventors have been at work contriving machines for picking cotton, but in practically all of such machines it has been the aim to make the mechanism entirely automatic so that, when driven over a field, the cotton will be picked without any particular attention to, or direction of, the picking devices on the part of the driver or operator. In other words, it has been the aim to produce machines as entirely self-controlled as binders and reapers, corn-harvesters, and the like. Cotton, however, is very different from grain, and growing, as it does, irregularly on spreading bush-like plants, the various machines have

that it would be impossible for man to secure everything he wanted in this particular field, showed the skill of an astute diplomat by proposing a compromise with nature, and it begins to look as though nature will accept this compromise, thereby eliminating one of the Southern planter's greatest bugbears, the question of securing sufficient labor for the cotton harvest, and also cutting down enormously the cost of such harvest.

The plan, in short, proposed by Mr. Lowry is to provide a vehicle with power-driven cotton picking mechanisms, and to make these mechanisms manually directed. Thus, as the machine is propelled along a row of plants, a number of operators carried

tion of the invention.

The machine is so simple that merely to see it is to understand it. There is practically nothing about it to get out of order. It is in no sense cumbersome, and therefore is light of

A pole is secured to the framework, to which is hitched a team of mules or horses, which also walk in the furrows on opposite sides of a row of plants. A system of shafting and gearing is supported by the frame of the ma-



chine, the shafting being provided with roller bearings so as to insure an easy movement therefor, and to reduce to a minimum the power necessary to the driving of the various parts. This shafting consists of a main transverse shaft which is driven through the medium of the traction wheels, a sprocket wheel being secured to each of them, and is geared to sprocket wheels provided on each end of the main shaft by means of chains. Each of the sprockets on the main shaft is provided with a ratchet clutch in order to compensate for the variations of the relative speeds of the traction wheels, thus insuring proper speed to the shafting at all times. A longitudinal shaft is geared to the main shaft and is provided with suitable bearings at its forward and rear ends.

Both in front and rear of the traction wheels and supported by the frame of the machine, are seats provided for the operators. These seats are both commodious and comfortable, and are arranged to yield slightly to compensate for the jar of the machine while passing over the fields. They are also arranged so as to be adjustable in order that the

and to hold them open in such a manner that when the cotton is stripped from the teeth of the belts, it will be delivered into these bags. When the bags become filled, the frames and bags are rapidly lowered by means of the hinge arrangement, and then the bags and contents are removed and empty bags are placed on the frames to take their place. Power is applied to the endless tooth belts by means of small belts which gear the upper endless belt pulleys to pulleys keyed to the longitudinal shaft.

The teeth on the endless belt are so designed and arranged that they will readily engage the fiber of the cotton and draw it from the bolls without engaging leaves or twigs, or in any manner injuring the plant or unopened bolls. Each of the picker devices is so delicately and perfectly counterbalanced that it readily responds to the touch of the operator, and may be directed by him to any desired spot on the plant without any more effort on his part than were he to grasp a light stick in his hand and point it at one boll after the other. The picker arms also yield to his direction to any desired spot on the plant, and are so arranged as to have a very

of the cotton raisers and business associations throughout the South. Another good sign of progress lies in the fact that other inventors have taken up this line of thought, and there is no doubt but that, in a comparatively short time, the new type of machine will be brought to perfection and another great economic problem thus satisfactorily solved.

London Fogs.

The heavy fogs in London during the last few weeks have revived public interest in the method of dissipating fog by electricity described in a recent issue of the INVENTIVE AGE. The English fog is *sui generis*, and has characteristics unknown in America. Its basis is moisture, to which the British isles are peculiarly liable from their situation. Scientists say that the topography of London renders it even more vulnerable than most other parts of England. The mist alone would be only a trifle, not necessarily unwholesome, and easily dissipated by the sun, but it becomes charged with the immense quantities of smoke pouring from countless chimneys, the residue of soft-coal combustion. This so thickens the fog that it almost defies the sun. It gathers at the worst after sundown, and becomes so dense in the night that vehicle traffic may be impossible and the pedestrian must feel his way about as if blind. After sunrise as a rule, the fog slowly disappears, till by noon the sun appears as a red ball.

The fogs are said to be less dense now than fifteen or twenty years ago, owing to the attempts to abate the smoke nuisance and to the growing use of gas and electricity for heating and cooking. It is argued that the rigid enforcement of antismoke laws would prevent the formation of thick, lasting, and deleterious fogs, but a recent opinion from a recognized authority is to the effect that fogs would form without smoke, though presumably not so thick as now. He says that clouds and fogs are formed by the air's moisture collecting about the myriads of minute dust particles in the atmosphere; that the particles are more abundant above cities than in the open country; that the dust is due to many causes, and is producible by the use of gas and electricity as well as of coal, though naturally the particles are of different character.

This theory finds support in the fact that in spite of the relative absence of smoke, the fogs last month were the blackest in ten years. Traffic on the railways was demoralized, and locomotion on the streets was most dangerous. Omnibus drivers had to dismount and lead their horses; to attempt to cross the streets, except where a cordon of policemen stood a yard apart, was at the risk of one's life. Vessels in the river could neither reach nor leave their docks, and it is estimated that the fog of one week cost the city \$5,000,000.

But there was one man who was grateful for what was considered a public calamity. This was Sir Oliver Lodge to whom the dark visitation presented fresh opportunity to renew the campaign which he began twenty years ago against the fog fiend. From

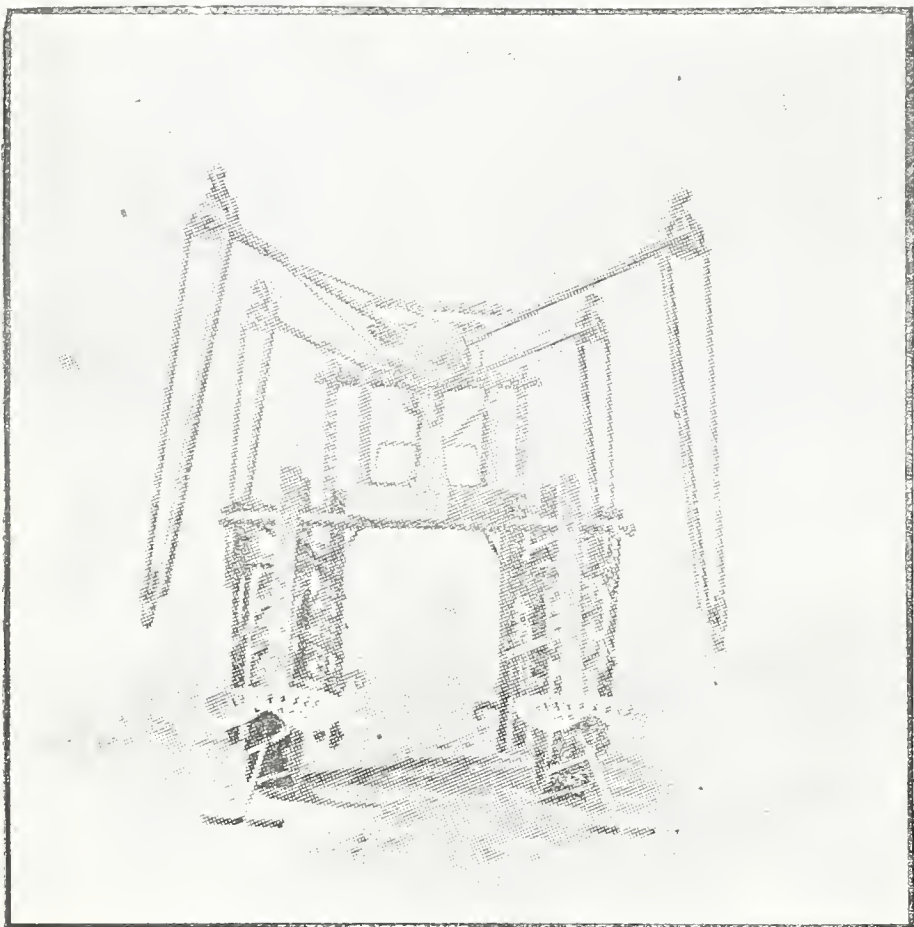
artificial towers, 80 feet high above the University where he labors, extend strands of barbed wire, and from his research laboratory came the crackle of powerful electric discharge, and great sparks vibrated between the terminals of the apparatus with which the professor was preparing to launch the thunderbolts of science against the British climate. All was in readiness for the experiment. Assistants pulled the terminals apart, and the discharge was transferred to the outside wires. Then a wonderful thing happened. Through the opaque fog bank the outlines of the tall buildings around were gradually developed with the slow certainty of a photographic plate. The fog became a cloud, the cloud became merely mist depositing itself in dark drops on the walls, and the atmosphere about the operators cleared. Then the current was shut off and at once the fog rushed back, black and thick, and again enveloped them.

While the experiments proved that fog can readily be dissipated by the aid of electricity the cost of applying such a method to an entire city would be prohibitory. There are, however, as Sir Oliver Lodge points out, important centers where any means of mitigating the nuisance would seem to be legitimate.

Apparatus for Sealing Weights.

The E & T Fairbanks & Company, of St. Johnsbury, Vt., is the assignee of a patent recently granted to Charles E. Carr, of St. Johnsbury, Vt., on an apparatus for sealing weights. It is a well known fact that the weights of scales are customarily cast slightly heavier than needed, and afterwards the weight is reduced to the form of a given standard. This operation usually consists in drilling holes into the bottom of the casting until it agrees with the standard with which it is frequently compared. If too much is drilled out, the casting is plugged with lead until the weight is correct. As the bottom of the weight frequently contains a number of holes, the opportunity is offered for any evilly-disposed person to alter the sealing, either by drilling more holes, or by plugging lead into those already made, and this without detection, except by comparison with some accepted standard. This danger is so real that some governments refuse to accept weights sealed in this manner, requiring that the bottoms be turned off smoothly. Such an operation necessitates frequent removals from the lathes for trial, and it is the object of the present invention to provide an improved apparatus for overcoming this objection in a simple and effective manner.

The invention consists, primarily, in an apparatus for the purpose described, comprising a weighing-scale so arranged as to balance at a certain point when a standard weight is placed thereon, and having means to bodily raise a standard weight from its support when a heavier weight to be sealed is placed on the scale, a poise or similar movable balance, means to indicate the amount of surplus material in the weight to be sealed, and a tool for removing the surplus material from the weight to be sealed.



operators may sit any desired distance from the ground to suit their convenience.

A pair of arms extending laterally in opposite directions are sleeved to rock freely in a vertical plane on the longitudinal shaft toward the front of the machine and convenient to the front seats, and another similar pair of arms are arranged on this shaft toward the rear of the machine and convenient to the rear seats. These arms are counterbalanced by springs. To the outer free ends of each of these arms is pivoted for universal movement a picking device. These picking devices consist of a suitable casing provided at top and bottom with a pulley, over which runs an endless belt provided with fine teeth. The part of this belt which passes over the lower pulley is exposed, so that when it comes into contact with a boll of opened cotton, it engages the fibers and draws it from the boll, carries it through the casing to the top thereof, and is then stripped from the teeth of the belt by means of a small doffer wheel which is provided for that purpose.

Hinged to the frame of the machine and adjacent to the path of the doffer wheel are rectangular frames, which are made of light gas pipe. These frames are adapted to receive bags

wide range of movement.

A seat is arranged at the top and center of the machine for the driver, and provision is made whereby, should it become necessary to stop the machine in its travel through the field at any desired spot where an unusual profusion of cotton occurs, in order to enable the operators to gather all of this cotton, the driver, by manipulating a foot lever or crank, may furnish power sufficient to provide motion to the picker devices. This may be accomplished with a minimum amount of exertion on the driver's part, as the shafting is all provided with anti-friction bearings and runs very freely.

When it is considered that the cost of harvesting the last cotton crop was in the neighborhood of \$100,000,000, and that with the Lowry machines, even in the earliest stages of their development, it is estimated that the same crop could have been gathered for \$20,000,000, the enormous saving powers of the same will be appreciated. That the machine is a success is evidenced by the fact that whenever it has been tried and operated, the planters and others capable of judging have been high in their praises, and the inventor has been the recipient of congratulatory messages and resolutions from many

LATEST COURT DECISIONS IN PATENT & TRADE-MARK CAUSES.

UNITED BLUE FLAME OIL STOVE CO. v. SILVER & CO.

(Circuit Court, E. D. New York. November 1, 1904.)

1. PATENTS—ANTICIPATION AND INVENTION—BLUE FLAME OIL BURNERS.

The Ruppel patent No. 616,425, for a hydrocarbon burner, construed, and held not anticipated, and to disclose invention. Claims 6, 7, and 8 are also held infringed.

2. SAME INFRINGEMENT.

The Jeavons patent, No. 671,291, for a burner, held not infringed.

MERRIMAC MATTRESS MFG. CO. v. FELDMAN.

(Circuit Court, D. Massachusetts. November 3, 1904.)

1. PATENTS—ANTICIPATION—CRUDENESS OF ANTICIPATING STRUCTURE.

The fact that a mechanical structure is crude does not prevent it from being an anticipation of one subsequently patented, where the inventive thought embodied is the same in both.

2. SAME—ABANDONMENT.

Where an unpatented mechanical invention was reduced to practice by the construction and use of the device, and its exhibition by the inventor to others, it cannot be abandoned so as to change its effect as an anticipation of a device subsequently patented by another.

3. SAME.

Anticipation is not avoided by the fact that the inventor of the anticipatory device, which he reduced to practice, did not realize its value, and so changed it before applying for a patent that the patented structure was not an anticipation.

4. SAME—PRIORITY OF INVENTION—REDUCTION TO PRACTICE.

The first to reduce an invention to practice, as shown by an actual construction produced in court, is usually held to be the inventor, as against another who merely says he has previously conceived the invention.

5. SAME—ANTICIPATION—COUCH-BED.

The Leighton patent No. 667,916, for an interconvertible couch-bed, is void for anticipation by one Mallet, who conceived the invention and reduced it to practice by the construction of a couch-bed prior to its reduction to practice by the patentee.

MARVEL CO. v. PEARL et al.

Circuit Court of Appeals, Second Circuit. Oct. 19, 1904.

1. UNFAIR COMPETITION—SIMILARITY OF MECHANISM.

In the absence of protection by patent, no person can appropriate to the exclusion of others elements of mechanical construction which are essential to the successful practical operation of a manufacture, or which primarily serve to promote its efficiency.

2. SAME.

Unfair competition is not established by proof of similarity in form, dimensions or general appearance alone, especially where such similarity is characteristic of the article in question, or appears to result from an effort to comply with the physical requirements essential to its successful operation, and not from any design to misrepresent its origin.

3. TRADE-NAMES—INFRINGEMENT—DESCRIPTIVE TERMS.

The adoption of the term "Whirling Spray" as the trade-name for a syringe, where it is distinctly descriptive of the mode of operation, does not deprive another manufacturer of a like article of the right to

adopt and use the name "Whirlsray" therefor.

WESTINGHOUSE ELECTRIC & Mfg Co. v. STANLEY INSTRUMENT Co.

Circuit Court of Appeals, First Circuit. Sep. 9, 1904.

1. PATENTS—INFRINGEMENT.

The Tesla patents, Nos. 511,559 and 511,560, for an improved method and means for operating electric motors, held valid and infringed.

2. SAME—PATENTABLE INVENTION.

Watson v. Stevens, 51 Fed. 717, C. C. A. 500, and DuBois v. Kirk, 15 Sup. Ct. 729, 158 U. S. 58, 39 L. Ed. 895, applied to sustain as patentable a particular practical application of a known principle, which proved to be of advantage in the arts.

3. SAME—DECISIONS OF OTHER COURTS.

The history of the litigation in reference to the patents involved stated, and also the practice in this circuit with regard to following decisions of the courts of appeals in other circuits in regard to letters patent for inventions reviewed, and the method of practically applying the same restated.

4. SAME—ANTICIPATION.

On this appeal the defense alleged anticipation by prior publication. Held, that it was sufficient that the proof furnished by the complainant as to such alleged prior publication was "full, unequivocal and convincing," and that the case does not require that it should be "beyond reasonable doubt."

5. TRIAL—OBJECTIONS TO EVIDENCE.

When a portion of complainant's testimony in this case was taken before the examiner, the respondent noted the following: "Testimony objected to, in whole or in part, as incompetent and insufficient on the issue of priority of invention." No specific objection was taken as to the mere form in which the interrogatories were put and the evidence given. The rule is therefore applied that the substance of the testimony could not be rejected on the ground that, if the respondent had desired to control the method of testifying according to the proper rules applicable thereto, he should have interposed specific objections at the proper time.

6. PATENT—ACQUIESCENCE.

Where a patent for an invention which promised and proved to be of great pecuniary value was granted after an interference proceeding in the Patent Office, and was for years acquiesced in, or sustained when later brought into litigation, largely on the defense of anticipation, such facts have weight in favor of the patent, when the same issue is again raised on a bill in equity alleging infringement, although against new parties.

FOLGER et al v. DOW PORTABLE ELECTRIC CO.

Circuit Court of Appeals, First Circuit. Nov. 15, 1904.

PATENTS—INVENTION—INSULATION FOR SPARKING PLUGS.

The Folger, Moriarty, and Jacobson patent, No. 697,670, for a sparking block for use in gas engines, the essential feature of which is the providing of a double axial and radial insulation, is void for lack of patentable invention in view of the prior art.

HOLMES et al. v. KIRKPATRICK et al.

Circuit Court of Appeals, Ninth Circuit. Oct. 17, 1904.

PATENT—ACTION FOR INFRINGEMENT—EVIDENCE.

In an action for infringement of a patent, a written contract between the parties by which it was agreed that defendants might use the patented invention, subject to the payment of a royalty, if plaintiffs' right thereto

should be established by the judgment of a court, was admissible in evidence, as tending to show that the use was by plaintiffs' consent, and was therefore not an infringement.

I. B. KLEINERT RUBBER CO. et al. v. STEIN et al.

Circuit Court of Appeals, Seventh Circuit. Oct. 4, 1904.

PATENTS—INVENTION—STOCKING SUPPORTERS.

The Parramore patent, No. 629,391, for a stocking supporter consisting of duplicate suspension tapes and a single hanger adapted to be detachably fastened to a corset stud, is void for lack of patentable invention in view of the prior art, and especially of the Andrews patent, No. 520,551, which in mechanical means potentially adapted to secure the same result anticipated the Parramore device, in which the place of suspension was merely shifted from the side to the front of the corset.

BROWN v. CRANE CO.

Oct. 13, 1904.

PATENTS—ANTICIPATION—CORE-MAKING MACHINE.

The Grant patent No. 513,998, for a core-making machine, is void for anticipation by prior machines for making tiles which were mechanically and functionally identical, and used in an art which is broadly analogous; both relating to the shaping of tubular bodies from earthly materials reduced by water to plastic and cohesive conditions, differing in degree only.

VOIGHTMANN et al. v. WELS & RIDGE CORNICE CO. et al.

Circuit Court, W. D. Missouri.

Sept. 17, 1904.

1. PATENTS—SUIT FOR INFRINGEMENT EFFECT OF PRIOR DECISIONS.

When on a state of proofs less favorable to the defendants, one court has held a patent invalid on the grounds that there is a lack of invention and that the devices employed are only aggregations, the rule or sentiment of comity will forbid another court from a different conclusion, unless it feels compelled thereto by a positive sense of duty.

2. SAME—INVENTION.

It being old to glaze fixed metal sash with wire glass and to use fusible links in places where any weight, such as a door, a valve, wires, shutters, or any other thing is to be kept suspended, until, on the breaking out of a fire, the same is closed by the action of heat, there was no invention in so glazing a pivoted sash, nor in using a fusible link to hold in an open position an automatically closing sash, more especially when it was old to hold such a sash open by means of a cord described in the patent to be the equivalent of a fusible link.

3. SAME—EXTENDED APPLICATION OF OLD IDEA.

The mere carrying forward or extended application of an old idea or thought is not invention, even though it results in improvement in degree.

4. SAME—NOVELTY—COMBINATION OF OLD ELEMENTS.

It is not the law that the asserted novelty of a patented combination can only be overcome by showing that all of the elements have previously been employed as a unit in the same relation to each other.

5. SAME—GENERAL USE AS EVIDENCE OF INVENTION.

No extent of use of a patented article can supply the want of actual invention or cure the vice of mere aggregation of parts.

6. SAME—FIREPROOF WINDOWS.

The Voightmann patent No. 600,196, for an improvement in fireproof windows, claims 5, 6, and 7, are void for lack of invention, and also as being for mere aggregations.

SAWYER SPINDLE CO. OF MAINE v. CARPENTER.

Circuit Court, D. Rhode Island.

Nov. 1, 1904.

1. PATENTS—TERM—EXPIRATION OF PRIOR FOREIGN PATENTS.

The amendment of Rev. St. § 4887, by Act March 1, 1903, c. 1019, 32 Stat. 1225 [U. S. Comp. St. Supp. 1903, p. 405], is not retroactive, and did not revive a patent which had previously expired under the section as it stood before amendment, by reason of the expiration of a prior foreign patent for the same invention.

2. SAME—IDENTITY OF INVENTION—DIFFERENCE IN BREADTH OF CLAIMS.

A foreign patent and a subsequent American patent are not for different inventions because the latter contains a more generic claim, which covers the specific form of device described in the former, and other forms as well; and on the expiration of the foreign patent the specific invention claimed therein cannot be held to infringe the broader claim of the American patent, which to that extent, at least, expired with the foreign patent, by virtue of Rev. St. § 4887, where the patents were granted before the amendment of such section by Act March 3, 1897, c. 391, § 3, 29 Stat. 692 [U. S. St. 1901, p. 3382].

3. SAME—AUTHORITY FROM INVENTOR TO OBTAIN FOREIGN PATENT—EVIDENCE.

To bring a patent within the provision of Rev. St. § 4887, that "every patent granted for an invention which has been previously patented in a foreign country shall be so limited as to expire at the same time with the foreign patent," the party alleging such expiration has the burden of proving that the foreign patent was obtained by the American patentee or with his consent. Quære, whether evidence that it was obtained by another, to whom the American patentee communicated the invention, as shown by the application for his foreign patent, is sufficient to show prima facie that such person was authorized to procure a patent.

HYGIENIC FLEECE UNDER- WEAR CO. v. WAY.

Circuit Court, E. D. Pennsylvania.

Nov. 26, 1904.

UNFAIR COMPETITION—PATENTEE AND IMPLIED LICENSE—RIGHT TO USE OF NAME.

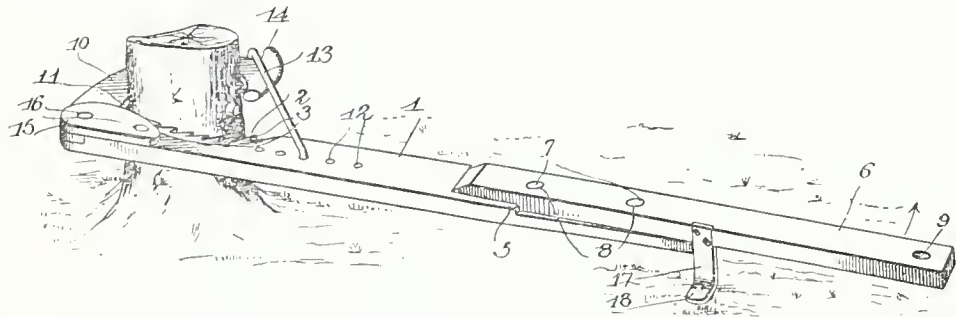
Defendant Way, while manager of a knitting company, invented an improved muffler, which he patented. He did not transfer the patent, but the company entered on the manufacture of the article under the license implied from his connection with it when the invention was made, and sold it under the name of "Way's Mufflet"; also registering the word "Mufflet" as a trade-mark. Defendant left the employ of the company, which subsequently transferred his business and property to complainant. Defendant commenced the manufacture and sale of the article under the name of the Way Muffler Company, marking each article with the name "Way's Muffler" and the date of his patent. He also adopted a box having a characteristic design on the cover. Complainant continued the manufacture of the article, selling it under the name "Way's Mufflet," and marking it with the date of the patent, and also closely imitated the design and reading matter on defendant's box lid, and copied new styles of the article devised by defendant, and his numbers designating the same. Held, that defendant, as the patentee, had the right to use his name, as well as the descriptive word "muffler," to designate his manufacture; that complainant acquired no right to either, or to mark its goods as patented, and that its use of such designations and imitation of defendant's packages and designs constituted unfair competition.

CLEVER NEW PATENTS.

STUMP-EXTRACTOR.—PAPER GRAPE BASKET.—ATOMIZER OR SPRAYER.
WHIFFLETREE-HOOK.

Stump-Extractor.

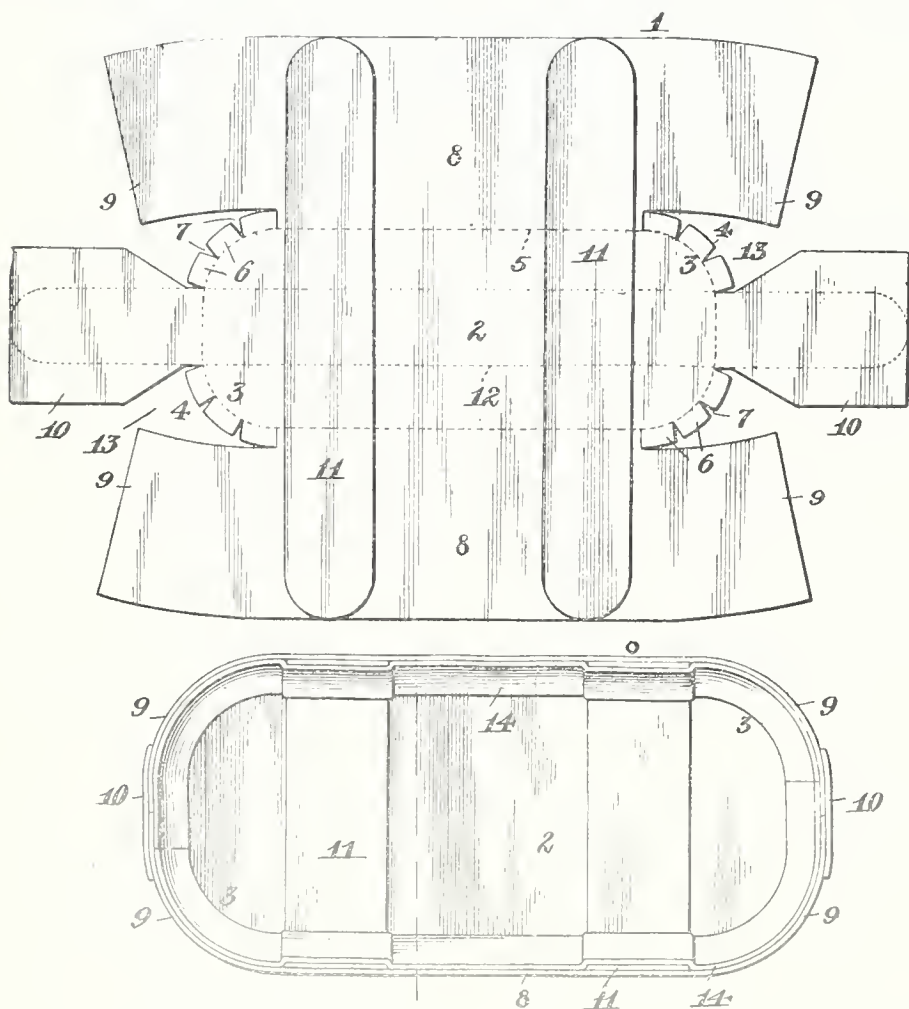
This stump-extractor is the joint invention of Messrs. Samuel D. Wheeler and Henry V. Whittle, of Fowlstown, Ga., and they consider it a peculiarly efficient device for the purpose. In appearance it resembles a huge pipe wrench consisting of a long arm or shank 1, that is preferably constructed of sections, one end having a plurality of teeth 3, and a jaw that is adapted to embrace the stump and is held in position by a suitable link 13. A team is



hitched to the other end, which end is provided with a shoe 18 that supports the arm above the surface of the ground. The application of the device will be clear by reference to the illustration. It is fastened upon the stump in the manner shown, and the team is then hitched to the free end of the arm, whereupon the stump can be bodily twisted from the earth.

Paper Grape Basket.

The increased cost of timber has been felt in every class of business, and this is emphasized by a recent patent secured by Mr. James F. Donley, of Buffalo, N. Y., on a Paper Grape Basket, that has several advantageous features of novelty, outside of its cheapness. The blank of the basket body is constructed from a single piece of paper, having an outline and being so formed that, when folding the same, the corners of the basket will be perfectly round and provided with reinforcements to strengthen the weak points heretofore found in baskets of this type. This allows the basket to be constructed of a thinner grade of material, which is more easily handled, is neat and light, and furthermore, presents a more finished appearance. The blank is



shown in the first view of the accompanying illustration. As therein presented, it will be seen that it consists of a bottom 2, provided with rounded corners and a narrow extension 6, at each corner having triangular incisions 7. Sides 8, extend integrally from the bottom, each side having an end extension 9, adapted to abut against the end extension of the opposite side. Opposite end flaps 10 project integrally from the bottom and are adapted to cover the abutting end of the end extension 9, as shown in the second figure. Transverse reinforcing strips 11, are glued to the inner faces of the bottom and sides, and the walls of the basket are reinforced by supplemental walls 14.

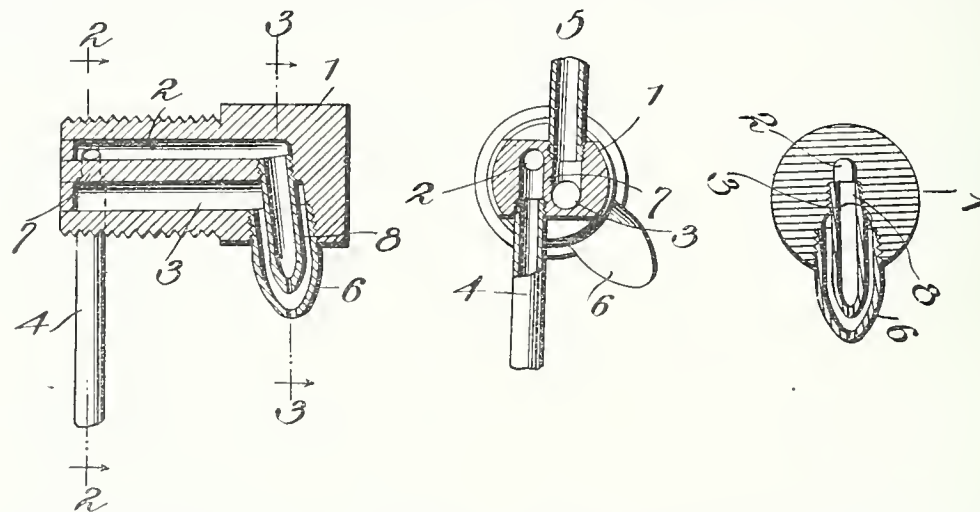
In forming the blank 1 into a basket the corner section-flaps are bent upward to form part of the sides and ends of the basket. The sides are next bent upward on the fold-line 5, and the curved end extensions 9 thereof are each

curved inwardly to meet the end extensions directly opposite, said meeting end extensions being arranged to abut, and with the end flaps 10, which are next bent upward to face the abutting ends of the end extensions 9, form the end walls of the basket. The end flaps are glued or otherwise affixed to the abutting end extension of the sides. Thus the body of the basket is formed. In addition thereto I prefer to strengthen the upright walls of the same by gluing or otherwise suitably affixing to the sides of the blank, prior to forming the basket, or to the inner sides of the basket when formed, reinforcements or supplemental walls 14, having their ends slightly curved to conform to the curvature of the end extensions 9 of the blank 1, and which reinforcements when so applied form rounded corners to correspond to the curvature of the said body.

Atomizer or Sprayer.

A unique atomizer for spraying water or other liquids, has been devised by Mr. John P. Farmer, a resident of Portland, Oregon, who has assigned his interest in the patent obtained thereon to A. F. Flegel, of the same place. The device is designed principally as a moistener for applying water to a letter or package, although it may be employed in any capacity for the atomizing of liquid by means of air or other fluid under pressure.

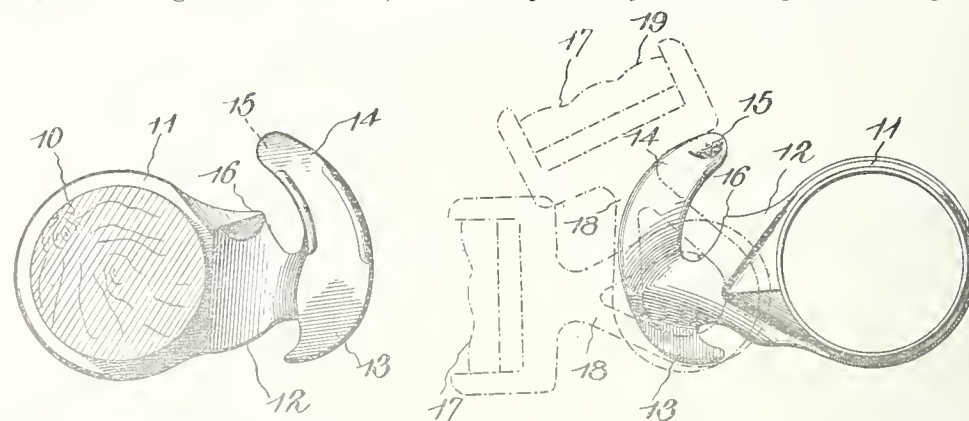
The invention resides more particularly in a nozzle constructed of two sections, 6, 8, one of which constitutes a passageway for air and the other for the liquid to be atomized. The particular form of the device shown in the accompanying illustrations consisting of a body block 1, having an interior bore divided by a partition into two passages 2, 3, each of which is provided with an opening, the walls of the openings being threaded. The inner liquid nozzle 8,



is screwed into one of the openings and extends through the other, and the second atomizing nozzle 6, is screwed into the other opening and surrounds the first nozzle. In the operation of the device, air or other fluid under pressure is forced through the pipe 5 and passage 3 to the nozzle 6, passing out through the opening at the end of said nozzle, and in its passage a partial vacuum is formed in the water-nozzle 8, so that the flow of a current of water will be induced through the water-passage and the nozzle, and the water will mingle with the current of air and be forced through the contracted discharge-opening of the nozzle 6 in the form of a fine spray.

Whiffletree-Hook.

This whiffletree-hook, guaranteed by the inventor, Mr. George De B. Hayes, of Chetek, Wis., not to accidentally become unfastened, is the subject matter of a recent patent. It consists of a supporting member 11, having a laterally curved shank 12 projecting therefrom, which shank is provided at its free end with a T-shaped head having arms 13, 14, of unequal length which curve rearwardly toward the supporting member. The longer of the arms is laterally inclined toward the curved shank, and terminates in a stop lug 15, extending transversely of the arm. The supporting member is in the form of a ferrule, adapted to be attached to a whiffletree, as illustrated. These devices are produced both "rights" and "lefts," but are precisely alike except that the parts



are reversely disposed. The cockeye can be coupled to the hook only by turning it into a horizontal position, threading its loop over the longer arm 14, then turning the cockeye into a vertical position to pass the lower portion of the loop-aperture over the shorter arm 13, then returning the cockeye to its operative position, as shown by dotted lines 1. To detach the cockeye, the same movements are employed in reverse order. So long as the strain is on the trace, the cockeye will retain its horizontal position; but in event of the slackening of the trace the trace end of the cockeye will fall into the position shown by dotted lines at 19 in figure 1. By this simple construction the safety of the hooks is increased without, however, increasing the expense or weight of the same.

AN UNSINKABLE LIFEBOAT.

DENMARK has given the world another unsinkable lifeboat. Since the days when the Vikings first touched the shores of America—centuries before Columbus set sail westward—the Scandinavians have been a sea-faring race; and the modern descendants of these ancient rovers show

extent that it is impossible to carry a sufficient number of boats for passenger and crew. Moreover, in case of accidents, these boats are liable to be staved in when lowered, or to be overcrowded and swamped, and if the ship should suddenly sink, there is usually no time to lower the boats,



The Englehardt unsinkable lifeboat, folded.

a constant and unflinching interest in all matters relating to transport by water.

The life saving globe described in a recent edition of the INVENTIVE AGE was the device of a Dane, and now comes the account of another invention, less original in design, but having novel and useful characteristics. It is

the windward ones being in nearly all cases inaccessible. The Englehardt collapsible boats, it is claimed, combine the requirements of the smallest possible space with the utmost carrying capacity. With their proper complement of passengers on board, they are unsinkable, even if seriously damaged, and they can easily be trans-



The Englehardt unsinkable lifeboat, extended for use.

thus described in the Danish Export Review:

The accidents which constantly occur at sea, raise the question of the difficulty in finding space on passenger ships for a sufficient number of boats to carry all persons on board, in case of a casualty occurring to the vessel. The ordinary lifeboats take up the space of the deck to such an

ported to any part of the ship and launched without davits. Should time not allow the lowering of the boats, the lashings need only be cut, and when the ship has sunk, the boats will be found floating on the water like rafts, easily accessible for passengers swimming or drifting about. Two men, or even boys, can in a few seconds extend the sides simply by

lifting in the cross-beams, and thus converting the boat-shaped raft into a lifeboat containing oars, bread, water-tanks, etc. The principles of the boat in question are:

1. A boat-shaped pontoon strongly constructed of wood or iron and filled with kapok, in water-tight cushions, which again are placed in water-tight compartments. Kapok is the product of plants growing in Java and Sumatra. It combines the greatest floating capacity with the least weight, and will sustain from thirty to thirty-five times its own weight in water.

2. A superstructure which can be folded down or erected, the whole surrounded by a fender also filled with kapok, in water-tight cushions. In extending the boats the oars will be released, an oval-shaped thwart supplied with cross-thwarts will slide into position, and stanchions and other parts will drop into their places automatically; the mechanism is very simple and not easily put out of order. The boat has stood the most exhaustive tests by competent authorities.

Further Applications of Radium.

A radium clock has been invented in England, which, it is announced, will run for 2,000 years without winding up. In this clock, a small piece of gold leaf is electrified by means of a tiny quantity of radium salt. It bends away from the metal substance and keeps on moving, under this influence, until it touches the side of the vessel. At the moment of contact it loses its electrical charge, upon which it springs back and is electrified again. The repetition of this process over and over again is the whole secret; and Sir William Ramsay considers it might be expected to go on, barring accidents, for a couple of thousand years. Asked if such an instrument could be made a reliable timekeeper by which a business man could keep his appointments, Sir William said: "Yes, so far as the principle is concerned, you have the energy, and unless the thing stuck at some time or other, it would go on and on, and could be regulated to move the hands

on a clock face to a mechanical nicety." He added that such a clock need not be a very expensive luxury. It ought to be possible to make one for about \$1,000, he thought.

Dr. Jules Rehn, of Paris, has been experimenting to ascertain the precise effects of radium burning upon the skin. If the rays of one-sixteenth-hundredth part of an ounce are applied, no pain is felt, nor is there any mark at the time of application; but twenty-four hours later a red mark appears, remains a fortnight, and leaves a scar like that of a burn. Ulceration does not occur unless the radium has been applied at least an hour, and if not treated medically, the wounds show no signs of healing after months have passed. What is of more general interest is the discovery that moles can be destroyed by applying the radium for ten minutes.

New Process for the Production of Pig Iron.

The Dominion Iron and Steel Company has, it is understood, decided to adopt at its works at Sydney, Nova Scotia, a new and inexpensive process for the manufacture of pig iron, utilizing waste iron ore, which costs from 60 to 75 cents a ton. Iron ore in this condition can be used only when it is solidified. For a great many years chemists endeavored to solve this problem, but it was only a few years ago that W. Owen, consulting engineer and foreign representative of Bruck, Kretschel & Co., steel manufacturers, of Osnabruck, Germany, made the discovery. Since then the process has been adopted by seven German and two or three English steel companies, with eminent satisfaction. The waste is first solidified, usually in bricks, and in this condition is placed in blast furnaces, when pig iron is produced. The plant which the Sydney steel company proposes to install will cost about \$8,000, and will have a daily output of about 75 tons. It will be the first of the kind erected on the continent, and the company will have the exclusive rights for the Dominion of Canada.

PATENTS

Send Your Business Direct to Washington ∴ ∴
∴ ∴ Saves Time and Insures Better Service.

Caveats,
Trade Marks,
Copyrights
and
Designs.

My office is close to U. S. Patent Office. FREE report as to patentability made. Personal attention given—TWENTY-FOUR YEARS PRACTICE. Book "How to Obtain Patents," etc., sent free. Patents procured through E. G. Siggers receive special notice, without charge, in the—

INVENTIVE AGE

Illustrated Monthly—Seventeenth Year.
Terms, \$1.00 a Year.

E. G. SIGGERS, 918 F STREET, N. W.,
WASHINGTON, D. C.

MECHANICAL INVENTIONS AND DESIGNS

Patents for which have been procured
through the Patent Soliciting Office
of E. G. Siggers, Patent Lawyer,
Washington, D. C.

William B. Roberts, Washington, D. C. Wheel.—This patent covers important improvements in vehicle wheels, and enables them to be advantageously constructed of light woods of a character, which when unsupported and unbraced, would be unsuitable and incapable of withstanding the strains to which a vehicle wheel is subjected. The improvements also obviate the necessity of tenoning or otherwise weakening a spoke, and it enables the same to be effectually secured to a felly and to a hub without mortising the latter. The hub of the wheel is provided with an annular series of projecting rods for supporting the inner ends of the spokes, which are provided at their outer ends with projecting rods for engaging the felly. These rods may be arranged in a variety of ways, and can extend entirely through the spokes, or be arranged only at the ends of the same. Bands are fitted on the hub for clamping the inner ends of the spokes.

William M. Russell, Walsh Station, Cal. Grain Separator. The object of the present invention is to improve the construction of grain separators, more especially the construction of the vibratory shoe and the agitators for separating the grain from the chaff, straw and weeds, and to provide an exceedingly simple and inexpensive shoe of great strength and durability, and to enable the means for operating the agitators to simultaneously actuate the shoe. The machine is provided with a plurality of crank shafts having end and intermediate cranks; the end cranks supporting and vibrating the shoe, while the intermediate cranks support and operate the agitators.

Robert J. Poole, Burnet, Texas. Churn Cover. The churn cover of this patent is an ingenious device designed to be employed in connection with vertically reciprocating churn dashers, and adapted to be readily applied to any ordinary churn body or receptacle. It is capable of effectually preventing the contents of a churn body from splashing out of it through the opening provided for the passage of the dasher rod. The cover will exclude flies and other insects, and it obviates the necessity of employing a fan or other means for driving flies from a churn. It consists of a horizontal peripheral portion or flange adapted to fit upon a churn body, and provided with an inclined inner portion thickened at the center, and a hood or receptacle formed integral with and rising from the thickened portion of the cover and bulged at the central portion. The upper portion of the hood or receptacle is tapered to form a constricted neck and provide an exterior grip or handle.

Nicholas C. Miller, Dodgeville, Wis. Three patents.—Hay Distributer, Horse Shoe, and Apparatus for Hoisting, Dumping and Trimming. The first patent is directed to an apparatus for loading straw, hay, and the like, and is designed to facilitate storing the same within a barn. It is provided with means for conveniently distributing the hay to the opposite sides of the barn when it is dropped or released from the grapple or hay carrier, and the apparatus is thereby adapted to dispense with the services of one or more men usually employed for distributing the hay throughout a barn. The apparatus comprises upper and lower tracks, and is provided with a normally-inclined distributer hung from, and traveling upon, the upper track, and constructed to tilt vertically upon an intermediate axis,

the opposite ends of the distributer being adapted for slidable engagement with the respective tracks.

The second patent relates to horse shoes, and provides means for securing them to a hoof without the use of nails or other similar fastening devices. The horse shoe, which has a rigid toe-cap, is provided with a hinged heel piece shaped to fit the back of the hoof, and connected with the toe-piece by adjustable means, whereby the shoe is firmly clamped to a hoof.

The apparatus covered by the third patent is adapted to hoist material in the shaft of a mine to the surface or other desired elevation, and to automatically dump the material into a tram car, and to carry the material from the mine and discharge the contents of the tram car at the desired point. The tram car is automatically returned to the shaft of the mine, and the apparatus is adapted to tram in four different directions. It comprises a hoisting bucket, a tram car movable to and from the bucket, and means operated by the bucket for actuating the tram car.

John F. White, Bloomington, Ill. Elevator. Bucket.—This invention, which has been assigned to the United States Portable Elevator Company, of Bloomington, Ill., relates to an endless elevator bucket, designed especially for use in portable grain elevators, and adapted for handling grain, such as wheat, shelled corn, and the like. The bucket is composed of two members arranged normally at right angles to each other, and adapted, when the bucket is passing around the wheels of the conveyer, to open or increase the angle so as to enable the bucket to cut its way through the material in the boot of the conveyer, and at the same time to provide ample clearance space. By this construction, endless elevators may be operated at a high rate of speed without liability of tearing off the buckets or breaking the chains.

James E. Duncan, Jennings, La. Three patents. Calculator; Computing Scale, and Screen.—The first invention is designed for computing interest. In carrying out the invention, a guide element is employed having a plurality of transverse sight openings, together with indicator scales disposed alongside the same. An upright disk is journaled upon the lower portion of the guide element, and a plurality of bearing shoulders are located at different positions from its axis of revolution. A plurality of cards is provided carrying tables of calculations, and each having computations of interest on different amounts for a certain time. Any of these cards can be inserted in the guide element, and is adapted to rest upon the different shoulders of the disk, so as to present the different computations in co-action with the scales upon the element. A holder for these cards is connected to the guide element and constitutes a support therefor.

The novelty of the second invention consists in mounting the computing mechanism on the sliding poise or weight of the graduated beam of the scale. When the poise or weight is moved along the beam to bring the scale to a balance, the computing mechanism is simultaneously operated, and will indicate both the weight of the goods and the price of the same. The weight or poise may be changed to arrange the scale for handling large and small quantities of goods.

The third invention relates to window screens, and the object is to provide a screen which will prevent the entrance of flies or other insects, though said screens may be conveniently and quickly opened to permit the ready escape of such insects from the room. A frame is employed which is adapted to be securely mounted in a window frame, and hinged at its lower end to this frame is another frame to which is connected

the screen. A spring, bearing against the side of the outer screen, normally holds the same in closed position. With this structure therefore, under ordinary conditions, no flies can enter through the window, but any flies that may collect on the inside of the screen may be readily driven from the room by springing the frame outwardly, thus opening it at the top so as to provide a ready means of escape.

Emily C. Duncan, Jennings, La. Two patents. Calculators.—The primary object in this case is to provide an exceedingly simple and readily understood structure with which computations, ordinarily requiring considerable time and care, may be quickly and accurately made. The device is intended particularly for computing interest on various amounts for short lengths of time, and, briefly described, consists of an upright frame in which is journaled an upright cylinder, the cylinder having a table of interest or other calculations thereon. An upright finder block carried by the frame is arranged over the cylinder, and comprises a stationary section having an opening therethrough and provided with longitudinal guideways and a movable section slidable in the guideways. The movable section has a sight opening, and is provided with a finder scale arranged alongside the same. This scale co-acts with a table of calculations and is movable to different positions along the same in order to change its positions with respect to the table.

The second invention is designed primarily for ascertaining the number of days a note or similar instrument has run, and the device is adapted to be quickly arranged for indicating the aggregate number of days from any one date to another, within the space of a year, with absolute accuracy. The calculator comprises a base or support, and a rotary member, one of the parts being provided with characters for designating months and days, and the other part being provided with characters for designating the number of days in a year.

Grenville H. Rood, Washington, D. C. Boat—Spark Arrester. Two patents.—The first patent is directed to ship propulsion, the object being to secure maximum speed and carrying capacity with a minimum hull draft and engine power. The propellers are located below the lowermost point of the hull, and in advance of the line of intersection of the stern and the hull to prevent the propeller from being affected by the swirl and eddy of the stern of the boat. The propellers are protected by keels, which form guards.

The spark arrester is designed for use on locomotives, traction engines and the like, and does not require any alteration whatever in the construction of the stack. It comprises a head, which is open at opposite ends, a hood having its external peripheral edge secured to the head and inclined upwardly and downwardly therefrom, and an inverted deflector hung from the hood, there being an interspace between the deflector and the head.

John E. S. Taylor, inventor; Taylor Manufacturing Company, assignee, Detroit, Michigan. Reamer.—This is a simple implement, particularly intended for use by plumbers for undercutting, or, in other words, making sockets in marble and stone, which sockets taper outwardly. The device is adapted to be placed in an ordinary drilled opening, and when rotated and having pressure applied thereto, will automatically expand and undercut. It consists of a shank or stem upon one end of which are mounted a series of cutter blades pivoted between their ends, the outer ends constituting cutting portions, the inner ends being slidably received within a cylindrical head or sleeve, slidably mounted on the stem and having a pivoted lower end. This sleeve is provided with an

angular shank adapted to be placed in an ordinary bit stock. Thus, when the tool is introduced into a drilled opening, and when pressure is applied thereto, the cutting blades will be swung outwardly and will be automatically fed as they cut their way into the walls of the opening.

John E. S. Taylor, Detroit, Mich. Apparatus for removing obstructions from pipes. It is the aim of the present invention to enable obstructions to be readily removed from the drain pipes and traps of basins, sinks, bathtubs, etc. It is constructed so as to apply fluid pressure to the drain pipe, to force the obstruction therefrom, and at the same time, the overflow pipe is closed to prevent escape of the fluid pressure through such connection. The apparatus, which is exceedingly simple in its construction, consists of a pump, having means for connection with a drain pipe, and provided with flexible means for closing the overflow opening.

William Y. Fuqua, Houston, Texas. Press for Ribbons and the Like.—The present invention relates to means for smoothing wrinkles out of ribbons, laces, neckties, and similar articles. The object is to provide mechanism of an extremely simple and inexpensive nature, which will receive and hold articles in a smooth and pressed condition, and from which they may be readily removed. A frame is employed in which is journaled a roller having a handle, the roller being furthermore provided with means for holding one end of a ribbon or other article to be pressed. On opposite sides of this roller, and bearing against the same, are pressing rollers connected to the central roller by springs which yieldingly urge the same into coacting relation with the central roller. The ribbon is secured at one end to the central roller, and is then wound upon the stem, the opposite presser rollers smoothing the wrinkles out and holding the ribbon in pressed relation. Thus when removed, the article is entirely smooth and unwrinkled.

William A. Holland, inventor; S. P. Wilson, assignee, London, Ohio. Target Trap.—The invention relates to implements employed in throwing clay pigeons, and is designed to be held in the hand. It consists of a stock on which is mounted a barrel, the whole being shaped similar to a gun. On the outer end of the barrel is pivoted the target-carrying or throwing arm connected to a spring that is held within the barrel. Mounted upon the stock is a trigger and latch that holds the arm against movement when the spring is under tension. An alarm bell is also mounted on the stock and has connection with the trigger so that an alarm is sounded when the target or pigeon is thrown.

William A. Holland, inventor; E. E. Harvey, assignee, London, Ohio. Trolley Harp.—This patent discloses a very simple construction whereby the trolley wheel of an electrically-propelled vehicle may swing on a vertical axis, independently of the trolley pole, to accommodate deflections in the wire, so as to reduce the tendency of the trolley to leave the wire when the vehicle is moving at high speed. Incidentally, a spring, which is employed to yieldingly retain the trolley in its normal position, serves as a latch to normally prevent the withdrawal of the harp from its socket, but permitting the separation of the parts to facilitate repair, when the harp is turned at right angles to its normal position. In addition to these features, the device comprehends a simple arrangement of contact plates, whereby the electrical connection between the pole conductors and the trolley wheel is maintained, notwithstanding the movement of the harp on its axis.



Advertisements inserted in this column for 15 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—Patent No. 761,063, dated May 31, 1904. Railway Tie In lump sum. Copy sent on application. Address, Ira C. Doyal, Collinsville, Ala. feb

FOR SALE—Patent No. 764,021, dated July 5, 1904. Lubricator for oiling car journals while in motion. Will sell outright for cash or trade for land. Address, W. S. Kenaga, White Church, Mo. apr

FOR SALE—Patent No. 728,414, dated May 19, 1903. Belt Supporter. Will sell at sacrifice owing to inability to give attention to it. Address, G. T. Rhoads, 420 Central Avenue, Plainfield, N. J. apr

FOR SALE—Canadian Patent No. 79,055. Adjustable Window Screen. On account of failing health, I am selling. Is being manufactured in the United States with considerable success. Address, David E. Fleming, 1113 D Street, Santa Ana, California. apr

FOR SALE—Patent No. 775,064, dated Nov. 15, 1904. Automatic Railway Switch Adjuster. No more open switches where it is used. Will sell for cash or on royalty. Canadian patent also for sale. Address, W. T. Harris, Ellettsville, Indiana. apr

FOR SALE—Patents No. 605,385 & No. 637,704. Street Sweeper. Will throw all dust and refuse into a receptacle. Practically dustless in operation. Will sell outright or lease on royalty. Alvin Brown, Plainfield, Ill. apr

FOR SALE—Design Patent No. 37,215, dated Nov. 8, 1904. Window Radiator. Will sell it outright for cash cheap, or will license under royalty. Address, Anthony J. Pieszak, 234 Lord Street, Dunkirk, N. Y. apr

FOR SALE or on royalty—Canadian Patent No. 41,462, dated May 3, 1904. Vehicle Brake. Address, Spangler & Freioar, Kadersburg, Montana. apr

FOR SALE—U. S. Patent No. 760,318, dated August 2, 1904. Hat Form Retainer. Make me an offer for my half interest. Address, E. B. Salisbury, Box 301, White Bear Lake, Minn. apr

FOR SALE—Rein Support. Prevents the horse from getting its tail over the reins; supports same when not in use; prevents their getting tangled, and serves many other purposes. Address, W. T. Jarboe, Winfield, Md. apr

FOR SALE—Patent No. 768,028. Spring Gun. Will give to some reliable manufacturer to manufacture on a royalty basis. Address, Robert Braum, Care of 207 Orchard Street, Elgin, Ill. mar

FOR SALE—Patent No. 763,340, dated June 21, 1904. Wire Winding Machine. Simple to construct. cheap to manufacture. Every farmer will buy one. Sell for cash or royalty. Send for drawings. Address, James S. Brandon, 508 East 10th Street, Cheyenne, Wyo. mar

FOR SALE—Patent No. 770,107, dated Sep. 20, 1904. Buggy Wrench. Will hold the tap and not grease the hands. Manufactured cheap, and a quick seller. Address, J. M. Carroll, Stockdale, Texas. mar

FOR SALE—Patent No. 771,378, dated October 4, 1904. Bag fastener for all kinds of grain bags. It also makes the best horse-tail holder on the market. Address, O. K. Luther, 11 Riggs Street, Ansonia, Conn. mar

FOR SALE—U. S. Patents No. 757,941, dated Sept. 1, 1903. Valve Cut Off for Tanks; and No. 769,550, dated Sept. 6, 1904. Supply and Service Tanks. Will sell cheap for cash. Send me an offer. Will lease on royalty. Address, P. J. Leithausner, Denance, Ohio. jun

FOR SALE—U. S. Patent No. 770,418, dated September 20, 1904. Cultivator, planter and fertilizer distributor. Will lease on royalty or sell territory. Make me an offer. Address, James K. Brown, Moultrie, Ga. mar

FOR SALE, or on royalty.—Patent No. 761,514. Baby Walker. Can be manufactured and sold at a good profit. Every household should have one. Address, Benj. Leininger, Florence Avenue, East McKeesport, Pa. mar

FOR SALE—Patent No. 776,922, dated December 6, 1904. A new pump, windmill or hand power. Satisfaction guaranteed. Address, P. J. Leithausner, Clarendon, Tex. jun

FOR SALE—Patent No. 775,427, dated Nov. 22, 1904. Screw Holder and Driver. Simple and Practical. A great labor saving device. Address, C. Lusted, Sr., Lafayette, La. mar

FOR SALE—Canadian Patent No. 84,967, and U. S. Patent No. 717,911. Stone Cutting Machine. Price \$1,500. Address, Claude L. Payne, Box 147, Salem, Indiana. mar

FOR SALE—Invention with stamps, dies, and forming tools. Cheap to right parties. Write for sample and particulars. Address, C. M. McClune, Box 247, Galeton, Pa. mar

FOR SALE—Patent No. 767,833, dated August 16, 1904. Device for regulating electric current, as electric light gas or oil, operating door bells, clocks, annunciators, burglar alarms, signs, telephones. Will sell outright. Address, F. E. Phillips, Hyde Park, Mass. mar

FOR SALE—Patents No. 774,693. Steering Apparatus for Ships, issued Nov. 8, 1904; and No. 755,928. Heat Regulator, March 29, 1904. Address, John Peterson, Lake George, N. Y. dec 05

FOR SALE—Patent No. 764,855. Storm Shield for Carriages. A sure winner. Every buggy and carriage owner will want one. Handiest shield yet invented. Address, E. S. Lynd, Orleans, Indiana. feb

FOR SALE—Patent No. 770,980, dated Sep. 27, 1904. Hay Stacker and Loader. Is portable and adjustable to suit varying conditions. Address, Frank J. Pavlik, Knoxville, Neb. feb

FOR SALE—Patent No. 771,762, dated Oct. 4, 1904. Safety Washer and Nut for Vehicle Axles. Will sell outright or lease on royalty. Address, William H. Bucke, Eaton, Ohio feb

FOR SALE—Patent No. 768,802, dated Aug. 30, 1904. Combined Fertilizer Distributor and Cotton Seed Planter. New and original. Would sell outright or state rights. Address, C. M. Huff, Watkinsville, Ga. feb

FOR SALE—Patent No. 775,663, dated Nov. 29, 1904. Combined Nut and Pipe Wrench. Powerful grip. Will not slip on any object. Address, John M. Hoke, Statesville, N. C. feb

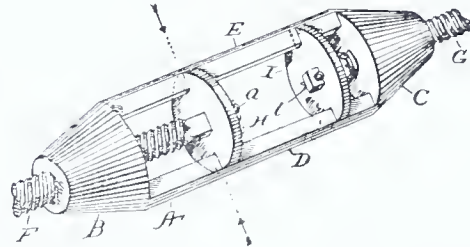
WANTED.

WANTED—A partner with business ability and some capital. I have several good inventions; also a house and lot. Partner wanted to put in machine shop to manufacture inventions. Am willing to give forty-five per cent of stock, and also pay back every dollar put in the business. Address, Oskar Melbye, Anacortes, Washington. apr

THE COWART SAFETY TURNBUCKLE.

Patented Feb. 16, 1904. Canada Protected.

FOR SALE.



Useful for car builders, steam shovels, ship builders and bridge builders. They will not work loose.

E. H. COWART,
PLEASANTON, CAL. jun.05

Drawings for Inventors.

If you want copies of the drawings of your patent, we can procure them at these prices:

12 copies, each sheet full size (8x13)	\$ 2.50
25 " " " " " "	3.50
50 " " " " " "	4.50
100 " " " " " "	7.00
500 " " " " " "	13.00
1000 " " " " " "	17.00

12 copies, each sheet reduced 1/2 (8 1/2 x 5 1/2)	\$1.25
25 " " " " " "	2.00
50 " " " " " "	3.00
100 " " " " " "	4.00
500 " " " " " "	7.50
1000 " " " " " "	9.00

These copies will be made by the photo-lithographic process, by the firm which formerly attended to the Patent Office work, and will be equally as good as the drawings accompanying your letters patent. Five hundred copies of your patent would cost you at least \$25. We can furnish 500 copies of the drawings, if contained on one sheet, for \$13 full size, or \$7.50, if reduced one-third, the same reduction as your letters patent drawings. Your valued orders solicited.

The Inventive Age Publishing Company,
WASHINGTON, D. C.

Thousands

of inventions in the field of Railway and Engineering are being patented every year.

The Railway and Engineering Review

carries more advertisements of patent attorneys than any other railway paper in North America.

For rates, address—

The Railway and Engineering Review,
1305 Manhattan Building, Chicago.

A NEW BOOK FOR INVENTORS.

Patents and How to Make

Money out of Them.

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trademarks and copyrights. It also tells accurately how and what to invent, how to sell inventions, place them on the market, interest capital in them, and to successfully promote a stock company. It also contains an index of forms worth double the price of the book, to any one interested.

ELEGANTLY CLOTH BOUND.

GOLD STAMPED. \$1.00 Postpaid.

Sent with one subscription to AGE for \$1.75.

Or will sell separately.

Address— The Inventive Age Pub. Co.,
918 F St., N. W. WASHINGTON, D. C.

Magic Rheumatic Cure!

It absolutely does cure. It is not a cheap remedy but it is a cheap cure. Mark the distinction! There are a thousand remedies to one cure. This is A CURE. It costs \$2.00 a bottle, and is worth \$20.00 to any sufferer. Sold only by our authorized agents or direct of us. Send for circular. Agents wanted.

MAGIC CURE CO.

R. 313-315 Dearborn St. Chicago.

Bee-Keepers

Should all subscribe to

THE AMERICAN BEE-KEEPER,

(Established 14 years.

50 cents per year.)

The best magazine for beginners. We will send it **Six Months on Trial** for **20 cents**. Sample copy free.

Address:

The American Bee-Keeper, Falconer, N. Y.

It is published by the

W. T. FALCONER, MFG. CO.

One of the oldest and largest makers of bee-keepers' supplies. Catalogue free.



Attention Inventors!

LISTS OF MANUFACTURERS FURNISHED.

We are prepared to furnish lists of manufacturers in any line of industry.

Charge one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad will be inserted three times.

THE INVENTIVE AGE PUBLISHING CO., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.....

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

The Inventive Age

AND PATENT INDEX.

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 918 F Street, N. W.,

WASHINGTON, D. C.

The INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND A HALF.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

The INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 15 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,

WASHINGTON, D. C.

Entered at the Post-office as 2nd class matter.

WASHINGTON, FEBRUARY, 1905.

A NEW DEPARTURE.

Beginning with this issue, we commence the publication of the syllabus of the current decisions of the Federal Courts in patent, trade-mark, and copyright matters. We shall continue the service, provided we receive proper support from our subscribers. From time to time in the past, we have published the syllabus of the important decisions of the Patent Office, and the courts, but hereafter we shall make this a regular feature of our paper. To the inventor, the manufacturer, and the attorney, these decisions are not only of interest, but they have great educational value. They should be carefully perused.

A PUBLIC BENEFACTOR.

In another column we give the details of the new trade-mark law which will go into effect April first, 1905, and it is our present purpose to speak of the great service rendered by Arthur P. Greeley, Esq., in securing its enactment.

Mr. Greeley has given his valuable time, in season and out of season, in writing and speaking for a change in the present law, and to no one else is the public so indebted for the new legislation. His influence as a practicing attorney before the Patent Office is widespread, due largely to his splendid record as an official of that Office, and also to his unfailing courtesy and gentlemanly demeanor. He was therefore in a position to command great influence in securing the passage of his bill through Congress, despite some opposition. His was no easy task. He has worked since 1898 without any other compensation than the respect and admiration of his fellow-attorneys. After seven years unceasing labor, he has the supreme satisfaction of seeing, written on the statute books, a bill which is destined to play an important part in strengthening the control of the Federal Government over interstate commerce,

protecting the rights of the owners of trademarks and conserving the public interests. THE INVENTIVE AGE takes great pleasure in saying these few words in testimony to the public-spirited work of Mr. Greeley.

FURTHER PATENT LEGISLATION NEEDED.

In March, 1904, the AGE printed a copy of the bill introduced in the U. S. Senate by Senator Platt, of Connecticut, and recommended by the American Bar Association, concerning the formation of a court to be known as a "Court of Patent Appeals." The bill has not yet passed, and there seems to be no prospect of action thereon during the present session of Congress. Just now, the Senate is wrestling with the proposition of establishing an Inter-State Commerce Court to deal with all questions pertaining to the railroads; and we fear it will be a long time before the national legislature will consent to multiply Federal courts still further by establishing an appellate tribunal for patent cases exclusively. Yet, the present system fails to meet the plain requirements of justice. As is well known, we have nine judicial circuits, and a court of appeals for each circuit, so that in effect, we have nine supreme courts for the trial of patent causes. They are not bound to follow one another's decisions in respect to the same patent on the same state of facts. A patentee having established the validity of his patent in one circuit, has no assurance that it will be respected in any other. A manufacturer who has defeated a patent in a suit against his customer in one circuit, may be compelled to defend another customer in another circuit against suit on the same patent, and fight the whole ground over again. Indeed, a patent upheld by one circuit court of appeals may be nullified by another. It is true that the U. S. Supreme Court can step in and settle the conflict between circuit court of appeals by a writ of certiorari, but a patent is too short-lived to survive such proceedings.

To emphasize the need for some wise legislation on this subject, a single instance will be cited. Patent No. 629,391 for a stocking supporter issued to R. W. Parramore has been the subject of considerable litigation. In the Circuit Court of Appeals for the Second Circuit (114 F. R. 97), comprising the States of Vermont, Connecticut and New York, the patent was sustained, and is in full force and effect.

In the Circuit Court of Appeals for the Seventh Circuit, comprising the States of Indiana, Illinois, and Wisconsin, the patent has recently been declared null and void. There are still seven other circuits in which this patent may be litigated, or the patent may, by a writ of certiorari, be taken into the U. S. Supreme Court; but until the matter is finally determined, great injustice will be done both to the patentee as well as the public. For in the states of Vermont, Connecticut and New York, the patentee can collect damages or profits for the infringement of his patent, while in

the states of Indiana, Illinois and Wisconsin, this privilege will be denied him in the future. Such a state of affairs tends to bring patents and the courts into bad repute; for one of the courts is wrong, and the sooner a wrong is righted, the better it is for the cause of justice.

To remedy these and other defects, there should be but one court of appeals in patent matters, because each patent covers the whole United States, and a suit on it is, in reality, one between the patentee and all the people of the United States, the issue being the right of the patentee to exclude the public for a time from the use, without his consent, of the thing patented or alleged to be patented. When brought into litigation, the patent should be dealt with, once and for all, by an appellate court whose conclusions would be binding upon the courts and the people of the whole United States.

REPORT OF THE COMMISSIONER OF PATENTS.

The annual report of the Commissioner of Patents to Congress is always of interest to us, and should furnish instructive reading to inventors, manufacturers, and others interested in patents. A complete copy of the same can be obtained by sending ten cents to the Commissioner of Patents, Washington, D. C., and requesting a copy of the Gazette of January 31, 1905.

The Commissioner states that: "In 1904 there were received 51,168 applications for mechanical patents, 818 applications for design patents, 157 applications for reissues of patents, 2,524 applications for registration of trade-marks, 1,335 applications for registration of labels, and 397 applications for registration of prints. There were 30,824 patents issued, including designs: 110 patents reissued, and 2,158 trade-marks, 1,114 labels, and 207 prints registered. The number of patents that expired was 20,429. The number of allowed applications awaiting the payment of final fees was 9,302, and the number forfeited for non-payment of the final fees 5,413. The total receipts were \$1,657,326.53; the expenditures, \$1,476,000.38, and the surplus of receipts over expenditures, \$181,326.15. The total balance to the credit of the Patent Office in the Treasury of the United States on January 1, 1905, was \$5,863,866.76."

With the report, an interesting table is furnished showing a comparison between the receipts, expenditures, applications filed, issues of the Office, the printed copies sold, copies of records furnished, and the number of employees for the years ending, respectively, December 31, 1899 and December 31, 1904.

The table shows the growth of business of the Patent Office, and indicates very clearly that the increase of the force of employees has not kept pace with the work done. For instance, during the last five years, the receipts have increased twenty-five per cent; the expenditures twenty-one per cent; the applications and caveats filed twenty-six per cent; the issues of the Office, including letters-patents, trade-marks, labels, and prints, twenty-four per cent; printed copies of patents twenty-four per cent; copies of records furnished fifty-four per cent; yet the number of employees is only sixty-

nine more, which is merely an increase of ten per cent. This table makes plain, what is not generally known, that the employees of the Patent Office are doing more work now than they were five years ago.

The Commissioner makes no recommendation concerning a general increase of the force, though the table furnishes mute testimony of the fact that an increase is needed. However, in view of the trademark measure now before Congress, which will become a law April 1, 1905, an increase in the registration of trademarks is looked for, which will necessitate an increase of facilities, both in the force employed and in space and equipment required for its transaction. The considerable reduction of trademark fees provided for by the new law, and the fact that registration in the Patent Office will no longer be merely optional but necessary, justifies the prediction that the registration of trademarks will hereafter constitute an important branch of the business of the Patent Office, and in this respect will vie with the issuance of patents.

The Commissioner calls attention to the fact, which is recognized by those conversant with the Patent Office, that the clerical force of that Office is in a high state of efficiency. This is largely due to two causes: first, to a reorganization of the Office force; and second, to the untiring and efficient work of Mr. Charles M. Ireland, the genial Chief Clerk of the Patent Office. We take great pleasure in commending the good work of Mr. Ireland, for it has been conducted under considerable difficulties.

There are fewer complaints than ever about the furnishing of copies of patents, and the supplying of manuscript copies of the records of the Patent Office is more prompt than at any time in its recent history. As the Commissioner states, this has been accomplished without any corresponding increase in the number of employees, by improvements in methods of work and in standards of individual performance. The newspapers have chronicled the record-making work of the Misses Pretty, Cameron, and Brashears, until now it is pretty well known throughout the country, that the Patent Office has some high-speed typewriter operators. These results have been brought about by Mr. Ireland without the loss of his genial disposition, and with the retention of the respect and goodwill of those under him; besides having the hearty approval of all who are obliged to deal with the Patent Office.

The claims of losses of cash transmitted by mail to the Patent Office have been almost entirely eliminated. In 1900 the total was \$728.40. In 1904, the amount had been reduced to \$3.85, and this out of total receipts amounting to over one million dollars. This includes claims of losses erroneously made, as well as losses attributable to the mail service.

According to the report of the Commissioner, the condition of the examining divisions on December 31, 1904 is indicated by the fact that of the 38 divisions, 20 were then taking up new cases for action within one month

from the date of filing, 10 were in arrears between one and two months, and the remaining 8 between two and three months. This statement, however, does not take account of the greatest cause of delay in the prosecution of applications for patents. The AGE believes that Rule 63 of the Patent Office practice should be strictly followed in the examination of applications for patents, and that instead of giving precedence to new applications, as appears to be the present practice, that "applications which have been put in condition for further action by the examiner shall be entitled to precedence over new applications in the same class of invention."

Even if all the divisions of the Patent Office were only a month in arrears in new applications, inventors would hardly be in any better position than they are now, should amended cases be allowed to lag behind for periods of two, three, and four months. There is one of the divisions of the Patent Office within one month of the date of filing of new applications, which is over three months behind in amended cases; and there are only four of the divisions under one month in new cases, which follow Rule 63 and gives precedence to amended applications. We earnestly urge on the Commissioner of Patents the importance of having amended cases given precedence over new applications, throughout all the divisions of the Office. If this is done, the time required to obtain the allowance of applications will be materially shortened.

A PRUNE PICKING MACHINE WANTED.

The proposition to train monkeys to pick the prune crop of California has been advanced by Martin V. Seeley, an orchardist, who resides in San Jose, California. He conceived the idea of training the animals to do such work while a resident of Central America.

Mr. Seeley says that he has made arrangements with A. B. Janos, of Acapulco, Panama, for five hundred native tamed monkeys, and that this shipment is now on its way to California. Obtaining help to pick the prunes off the ground has been a perplexing problem to orchardists. Seeley declares he will have no difficulty in training the animals to pick up the fruit, and will place muzzles on them to prevent them from eating it. Orchardists in general doubt the practicability of Seeley's plan. An interesting question arises as to whether the monkeys can be excluded under the Federal law forbidding the importation of contract labor!

The dilemma of the California farmers should lead some ingenious inventor to devise a plan to pick the prunes without recourse to the brute creation. It seems a step backward in the art for man to depend on an animal to do his work. The brains of man should devise a better plan.

Sometime ago it was suggested that monkeys be trained to pick the cotton crop of the South, but nothing ever came of it, and we have no idea that the latest proposition to utilize monkeys to help man in his work will amount to anything. We do not know exactly what the problem is that confronts the California farmer, but man has been equal to any task as yet set before him, and we have so much confidence in the inventive ingenuity of Americans as to feel that as soon as this want is made generally known, some means will be provided to harvest the prune crop.

THE NEW TRADEMARK LAW.

At last after years of delay, Congress has passed a law, which, it is confidently believed and expected, will protect manufacturers and dealers against the appropriation of their trademarks by unscrupulous industrial pirates.

The AGE has heretofore commented at length on the impotency of our trademark laws and has urged the passage of such as would afford suitable protection. A short reiteration of the facts in the case is, however, not thought to be out of place, and a brief history of our trademark legislation is necessary to an appreciation and understanding of the results that have at last been accomplished.

In 1870, Congress passed a bill providing for the registration and protection of trademarks and imposing no limitation on the character or kinds thereof. In 1879, the Supreme Court of the United States decreed that this law was invalid on the ground that the Constitution gave no general right of control of trademarks to the Federal government. Thereupon, Congress passed a law registering and protecting trademarks which were used in commerce with foreign nations and Indian tribes, basing their right on clause 3, section 8, article 1, of the Constitution.

This in itself was not so bad, but the provisions and usefulness thereof have been made practically null and void by decisions of the Supreme Court, and particularly the case of Warner vs. Searle and Hereth Company, 107 O. G., 1874, commented on in a recent issue of the AGE. These decisions are to the effect that, in order to make out a case of infringement, a complainant must not only show that he is actually employing his trademark in commerce between foreign nations and Indian tribes, but must also prove that the alleged infringer is doing the same. The latter condition is extremely difficult to fulfill, and furthermore, the great bulk of marks which are employed exclusively in the United States, are without Federal protection. Consequently, it became necessary for the owner of a trademark to secure protection in a variety of ways in the different states of the Union.

As a result, our Federal trademark laws were of little value. In addition, this country became a member of a union of certain nations, created for the protection of industrial property, and has made several treaties with others in regard to the matter, many of which treaties it has been unable to observe.

However, with the growth of Federal control of interstate commerce, came the idea that Congress had the power to regulate the use of trademarks used on goods sold throughout the different states; and, as there are very few trademarks which were not so used, it became evident that proper legislation for these trademarks would give ample protection, particularly as strictly

local trademarks can be safeguarded in the state in which they are used.

Consequently, in 1898 a committee was appointed to revise and amend the United States trademark laws, the persons comprising this committee being Mr. Francis Forbes, Judge Peter S. Grosscup, and Mr. Arthur P. Greeley. The last named gentleman had given particular study to this subject, had seen, as Assistant Commissioner of Patents, the inadequacy of the laws, and was in many ways peculiarly fitted for the position. After an exhaustive consideration of the subject, the committee submitted their report, together with a bill said to be practically the work of Mr. Greeley. This bill, with a few minor changes, has now passed both houses of Congress and will undoubtedly become a law. It will go into effect April 1, 1905.

A brief summary of the same reveals the following important and interesting provisions. Trademarks that are used in commerce with foreign nations, between the states, or with Indian tribes, will be registered in the Patent Office upon suitable application and the payment of a government fee of \$10 in each case. When foreigners apply, some person must be designated in this country on whom notice of any proceedings can be served. No immoral or scandalous matter can be registered, nor can any emblem comprising the coat of arms of the United States, or of any state or municipality, or of any foreign country. Names of persons, firms, corporations, and the like can be registered, provided the same are produced in some distinctive manner. No portrait of a living individual can be employed without the consent of such individual. Any mark that has been in use by an applicant or his predecessors for ten years prior to the passage of the act can be registered.

Upon filing an application, an examination is made in the Patent Office, and if no objection is found to the same, the mark is published at least once in the Official Gazette, whereupon any one who believes he would be damaged by the registration of the mark may oppose the issuance of the certificate; otherwise, after a period of thirty days, such certificate will be issued. When two or more applications are made on marks which are substantially identical and are appropriated to goods of the same descriptive properties, interference proceedings are instituted in order to determine who has the prior right, these proceedings being similar in all respects to those adopted in patent matters. In case of a refusal to register a mark, an appeal is granted to the Commissioner in person upon the payment of a fee of \$15.00, and upon his adverse decision, an appeal may be taken to the Court of Appeals of the District of Columbia, the same as in patent cases. Every registered trademark can be assigned, together with the good will of the business in which the mark is used, and

the assignment must be in writing and recorded in the Patent Office. The certificate of registration remains in force for twenty years, except in the case of marks previously registered in foreign countries, in which case, the United States registration shall cease upon the termination of the foreign registration. The certificate, however, can be renewed from time to time for similar periods of twenty years, on the payment of proper renewal fees.

A very important feature resides in the power of cancellation. If a person deems himself injured by the registration of a trademark, he can at any time apply to the Commissioner of Patents to cancel the registration thereof; and, if a proper showing is made, the registration will be cancelled. Thus, if it can be shown that a trademark has been abandoned, or that a registrant was not entitled to the use of a mark at the date of his application, the Commissioner will cancel the same.

As to the protection afforded by the law, any person who, without the consent of the owner, reproduces, counterfeits, copies or colorably imitates any registered trademark and affixes the same to merchandise of substantially the same descriptive properties, and uses it in commerce among the several states or with a foreign nation or with Indian tribes, becomes liable to an action for damages, and the court may enter judgment for any sum above the amount found by the verdict as the actual damages, according to the circumstances of the case. Moreover, injunctions may be secured in the Federal courts to prevent the infringement of a trademark, the various courts having jurisdiction similar to that given in patent matters. The infringer may also be required to give up the labels, packages, or receptacles bearing the trademark in order that they may be destroyed. At the same time, it is distinctly set forth that the new statute will not in any way prevent or lessen an owner's right under the common law. Furthermore, no article can be imported into this country having a registered trademark, and upon filing copies of a trademark with the Treasury Department, that department, which has control of the custom houses, will, as far possible, prevent such importation.

Last but not least, it now becomes compulsory for a person having a registered trademark to notify the public that the same is registered by suitably affixing thereon "Registered in the U. S. Patent Office" or words of similar import.

This, in brief, is the new law prepared by experts with great care and after the most painstaking consideration. Unless some unforeseen obstacle arises, or unless some new and unheard of technical objection is raised by the Supreme Court, it will be clear that at last the long-delayed and hoped for protection will be afforded to a growing and exceedingly important part of our varied industries.

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the INVENTIVE AGE, which publishes a list of all patents issued each month. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy; twenty copies \$1.50.—Please give correct data in ordering.—Address,

THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

Issued December 20, 1904.

MECHANICAL PATENTS.

Continued from January number.

Sewer.....C. F. Leopold et al
Shuttle machine support.....W. A. Mack
Shade adjuster, Window.....E. T. Fry
Shade holder, Window.....I. S. Sherwin
Sharpening machine, Rotary cutter N K Skow
Shears.....W. E. Wahlin
Sheets, Machine for folding and interlocking
single or superposed.....S. Wheeler
Ship's hatch.....E. C. Akers
Shoe tip gage.....M. Cook
Signal system, Automatic.....J. R. Walsh
Signaling mechanism.....R. Herman
Skin stretching frame J. M. & D. F. Harrigan
Skirt lifter.....P. Brune
Skirt supporter and waist retainer J. Hagland
Sleigh.....A. P. Linn
Slubbing, intermediate or roving frame.....
W. H. Rhodes
Smoke box front protector.....W. P. Kelley
Snare tip.....D. C. Dennett
Solder for aluminium or aluminium alloys
.....R. Fortunet et al
Soldering iron.....A. A. Ackerman
Spanner or wrench.....J. Mohlig
Speed regulator.....J. E. Johnson
Spinning and twisting machine bands, Machine
for making.....T. A. Sizemore
Spinning frame separator mechanism.....
H. G. Beede
Spinning machine.....H. A. Owen
Spinning machine stop motion, Ring.....
J. Poisson
Spokes, Device for forming shoulders on.....
E. Einfeldt
Sprinkler head, Automatic.....C. B. Garrett
Stamp, Hand.....T. S. Buck
Stamp, Time.....2 pats.....W. I. Follett
Starch and making same, Soluble product
from.....C. F. Cross et al
Steam generator.....T. Langer
Stem holding and cutting shears.....C. Paff
Stirrup strap.....L. P. Wellmann
Stock tank.....I. B. Huenegardt
Stone saw.....J. F. Neher
Stove leg.....J. Jewell
Street sweeping machine.....O. Schumann
Stud for sew on fasteners.....T. R. Hyde, Jr
Study of languages, Means for facilitating
the.....H. Cannon
Sulfur trioxide, Making.....H. S. Blackmore
Swingletree.....D. H. Brazell
Switch.....W. K. Findly
Tag, Laundry.....W. M. Clawson
Taximeter or fare indicator.....B. Schneider
Teaching embroidery, Diagram system for.....
E. C. Wulle
Telegraphic key.....J. E. Pearson
Telegraphy.....T. B. Dixon
Telegraphy, Multiplex.....T. B. Dixon
Telephone call register and time indicator.....
D. A. Yoder
Telephone chair.....G. J. Just
Telephone system and apparatus.....E. E. Ries
Telephone transmitter.....E. E. Ries
Theater appliance.....H. A. Shaules
Thill coupling.....V. B. & L. Neal
Thill, Vehicle.....H. P. Baltzer
Tie.....T. S. Newton
Tire.....J. Sullivan
Tire, Pneumatic.....J. F. de Savignac
Tire, Pneumatic.....P. Magnus
Tire shield.....R. B. Ayres
Tire valve.....G. H. F. Schrader
Tire, Vehicle wheel pneumatic.....
G. R. Fenner et al
Tires, Puncture proof cover for pneumatic.....
J. D. Döbelman
Tobacco smoking pipe.....J. C. Gable
Tool, Pneumatic.....J. A. Lindstrom
Toy.....M. L. Wicks, Jr
Toy savings bank.....F. A. Lane
Track, Elevated.....W. A. Law
Traction motor.....E. A. Wheeler
Train system and apparatus therefor, High
speed.....T. H. Patenall
Train system and apparatus therefor, High
speed permissive.....T. H. Patenall
Tray.....S. Rubin
Tree holding device.....E. L. Arthur
Trolley crossing.....E. R. North
Trolley guard.....M. H. Dorsey
Trolley head.....E. V. Newcomb
Trolley head and wheel.....J. W. Sharp
Trousers guard.....P. C. Cullen
Truck, Car.....J. Green
Tubing, Locking mechanism for telescoping.....
F. A. Sowen
Tuning peg.....P. O. Gutman
Turbine motor.....L. Wilson
Turbine motor.....N. W. Fletcher
Turbine, Steam or gas.....J. Stumpf
Turpentine cup.....J. B. Morrison
Type setting machine.....T. A. Houghton
Type writer.....W. R. Fox
Umbrella rib.....C. B. Baldwin
Umbrella runner.....W. H. Gaskill
Umbrella stretcher connection.....S. E. Stafford
Valve, Check.....V. M. Denman
Valve for processing apparatus.....R. E. Carder
Valve for steam heating apparatus, Automatic
.....J. A. & W. T. Donnelly
Valve gear.....W. Gadd
Valve mechanism.....T. G. Van Sant
Valve mechanism, Locomotive.....J. B. Barnes
Valve, Rocking.....R. Whitehill
Vehicle brake.....W. M. Flewelling
Vehicle draft attachment.....G. H. Klugel
Vehicle driving gear, Motor.....H. T. Hansen
Vehicle, Motor.....W. H. Keates
Vehicle steering mechanism.....V. Martinetto

Vehicle steering mechanism, Motor road.....
C. C. Wright
Vehicle wheel.....M. B. Lloyd
Vehicle wheel.....S. F. Swanson
Ventilating device.....C. H. Porter
Vessel or can, Hermetically sealed multiple-
compartment.....G. H. Stewart
Vinegar making apparatus.....M. Kuner
Vise.....O. Lindberg
Voting machine.....B. I. Seelye
Voting machine.....C. Christensen
Wagon brake.....W. Koerper
Warp creel.....G. Crossland
Water cooler.....C. F. Conover
Water cooling apparatus.....E. Soller et al
Water heater.....J. S. Coe
Water meter.....J. Thomson
Water tube boiler.....J. J. Rohan
Waterer, Stock.....A. La Breche
Weeder.....E. Link
Welding machines, Motor for pneumatic flue
.....D. S. Cook
Wheel raiser.....H. Edeline
Window or sash fastener.....S. S. Bell
Window screen, Adjustable.....W. B. Phillips
Window ventilator, Storm.....P. G. Webber
Wire making machinery.....J. A. Horton
Wire reels, Automatic mechanism for barb.....
H. M. Coesey
Wrench.....F. H. Kanning
Wrench.....H. A. Vance
Yarn cone.....D. T. Berlzheimer

DESIGNS.

Bar fixture.....W. C. Huss
Carpet.....F. A. Haas
Glass receptacle.....2 pats.....J. Paul
Harmonica.....F. Strauss
Hat rest.....H. Frankel
Lavatory.....T. Kelly
Spoons, forks or similar articles, Handle for
.....H. Hillbom
Stove.....G. M. Coke
Stove, Heating.....E. B. Adler

Issued December 27, 1904.

MECHANICAL PATENTS

Accumulator and regulator.....E. Guillaume
Acetyl-salicyl-phenetidin, Making.....
S. L. Summers
Acid and making same, Ortho-dioxanthra-
quinone-sulfo.....M. Jijinsky
Acid nitriles, Making.....O. J. Graul
Acyated indoxyl and making same.....
D. Vorlander et al
Adding and subtracting machine.....R. L. Cleveland
Advertising apparatus, Prize awarding.....
J. O. Morris
Air compressor, Automatic.....J. Rogers
Air cooling or heating apparatus.....G. Epprecht
Album, Folding picture.....A. O. Sodergren
Alloy.....C. H. Bierbaum
Amusement device.....C. B. McKay
Animal trap.....L. M. Steelsmith
Animal trap.....J. Kerns
Animal trap.....J. W. Gates
Asphalt treating apparatus.....B. S. Truxal
Automatic gate.....V. W. Radcliff
Automobile controlling mechanism.....
F. H. Bogart
Automobile, &c., spring.....J. W. Nesmith
Automobile steering mechanism, F. H. Bogart
Automobiles, Supporting and shifting battery
for.....A. H. Whiting
Axes, Machine for removing scales from.....
E. P. Alexander
Axle, Automobile vehicle.....W. S. Morgan
Axle, Car.....H. J. Bayard
Bag fastener.....B. vom Eigen
Bag frame handle attachment or fastener.....
B. vom Eigen
Bale band tie.....L. B. Robinson
Baling press.....J. A. Clark et al
Ball batting and registering device, Base.....
2 pats.....E. F. Porter
Balls, Removing grease or oil from hollow
metallic.....A. Johnston
Band.....2 pats.....G. Arents, Jr
Barometers or other like articles, Bracket for
holding and locking in place aneroid.....
R. B. Heimbecker
Basket, Crate.....H. T. Lewis
Bath house, Folding beach.....J. C. Booker et al
Beam frame, Plastic.....R. C. Kyle
Bearing.....G. Engel
Bearing, Centrifugal machine.....G. Engel
Bed, Folding.....C. M. Hamilton
Bed, Invalid.....J. A. Devore et al
Beer box.....G. Klenk et al
Beet topping apparatus.....O. S. Martin
Bicycle chair, Child's.....E. Petersen
Bin.....M. S. Burdick
Blood, Producing a nutritive substance from.....
J. Hofmeier
Boat compensating device, Submarine.....
L. Y. Spear
Boat compensating device, Submarine.....
F. T. Cable
Boat, Life.....R. D. & R. D. Mayo
Boiler.....F. S. Whitelaw
Boiler tube plug.....T. H. Devaney
Boilers, Apparatus for feeding anti-incrusta-
tion fluid into.....A. McWilliams
Bottle.....J. G. Marmion
Bottle or the like closure.....A. M. Macnall
Bottle shipping case.....D. H. Bowlin et al
Bottle stoppers, Apparatus for applying.....
H. Coale et al
Bottling machine guard, Automatic.....
R. D. Price
Box covering machine.....P. S. Smith
Box nailing machine.....D. Smitjer
Box stay strip.....J. S. Stokes
Boxes, trays, cartons, &c., Corner joint or stay
for.....L. A. Dunbar
Brake rod automatic slack adjuster.....S. Jones

Brake operated signal or tail light.....S. N. Wilcoxson
Brick kiln.....J. C. Boss
Brick machine.....H. J. Flood
Bronze to powder, Apparatus for reducing.....
G. E. Schmidmer
Broom making machine.....S. T. Cameron
Brush back drilling and plugging machine.....
C. Gruneberg
Brush, Fly.....R. T. Dressler et al
Brush holder.....W. D. Roop
Buggy seat.....E. Cox
Bulletin board.....F. Howard
Button.....O. L. Henerlau
Button socket member.....H. Kerngood
Cabinet.....A. McKenzie
Cabinet, Dispensing.....C. W. Trefny
Calculator.....A. H. Merrill
Camera, Panoramic.....P. N. Angsten et al
Camera, Photographic.....G. Washington
Camera shutter.....J. A. Ricketts
Can opener.....J. M. Keep
Can testing machine.....2 pats.....C. H. Ayars
Cane mill.....J. P. Golden
Cane, Parade.....H. W. Wylie
Canopy support.....J. H. Sprague
Cap for armor piercing projectiles.....C. Davis
Car.....E. W. Summers
Car, Adjustable double deck stock.....
J. B. Smiley
Car brake, Railway.....2 pats.....W. L. Barker
Car brake slack adjuster.....W. O. Mundy
Car coupling.....C. C. Werthner
Car coupling.....J. McWatters
Car frame and bolster, Railway.....J. J. Hennessey
Car frame, Railway.....W. F. Kiesel, Jr
Car grain door.....J. H. Kennedy
Car, Metallic street.....F. H. Rapley
Car, Railway.....H. J. Bayard
Car replacing device.....P. G. Jones
Car seat.....E. G. Budd
Car seat cushion.....2 pats.....E. G. Budd
Car, Stock.....W. J. Schumacher
Car ventilator retaining device.....H. Witte
Car wheel.....C. Wimmer
Car window.....H. V. Vogel
Cars, motor cars, &c., Speed and distance re-
corder for tram.....H. Hartley et al
Carbons, Utilizing waste ends of.....R. Peters
Carbureter.....M. Loewenstein
Card safety tray.....W. A. Hoschke
Carpet fastener, Stair.....O. Karcher
Carpet stretcher.....W. F. Baumhauer, Jr
Carriage, Child's.....C. O. & J. W. Glascock
Carriage curtain, &c., fastening.....C. E. Flores
Carriage jack, Automatic.....R. Edeline
Carriage wind shield.....G. A. Pond
Carrying table, Portable.....G. Ward
Cattle guard.....J. A. Fennel
Cement blocks or slabs, Apparatus for the
manufacture of.....W. A. C. Waller
Cement grinding mills, Air separator for.....
H. Hitzel
Cement kiln, Rotary.....G. H. Sharp
Cementing cloth, wood, leather, &c., Composi-
tion for.....C. Ellis
Centrifugal machine.....T. B. Freas
Centrifugal machine.....J. C. Morrissoa
Chair or sofa and couch, Combined.....
J. A. Walsburger
Chimney cowl.....P. A. Shaley
Chloroform and making same, Chloral acetone
.....C. F. Schaefer
Christmas tree candle holder.....H. G. Hess
Chute gate and operating mechanism.....Bin.....
D. B. Cook
Cigar lighter, Electric, W. P. Carstarphen, Jr
Cigarette.....J. & L. Przedecki
Cigarette mouthpieces, Apparatus for prepar-
ing.....J. & L. Przedecki
Clock, Graphophone alarm.....J. A. Wozencraft
Clock winding mechanism.....W. M. Fulton
Clothes line pole or support.....H. O. Breckenridge
Clutch.....F. A. Brownell
Coal crusher.....G. W. Perry
Coat.....A. F. Skaren
Coffee separating machine.....C. R. Groff
Comb.....K. Tojetti
Comb starters, Gage for cutting foundation.....
J. E. & J. L. Enyart
Computing machine.....reissue.....
H. H. Helmick
Concrete construction.....F. Melber
Concrete, Reinforced.....E. B. Jarvis
Concrete walls, Molding form for.....E. B. Jarvis
Conduit, Flexible.....A. J. Hoskins
Connecting rod.....J. F. Duryea
Controller.....J. P. Durkin
Conveyer.....S. M. Wixell
Conveyers, Feeder for belt.....L. J. Robb
Copier, Manifold.....J. F. Ewen
Copy pad moistener.....T. I. Fisher
Corn gatherer.....E. Hollis
Corn husking machine snapping roll.....
H. Kolling
Cotton gin.....J. E. Cheesman
Coupling.....W. A. Hull
Crane.....W. N. Eckle
Cream separator.....C. W. Parks
Cream separator.....C. J. Kirch
Cuff blanks, &c., Machine for folding.....
C. H. Knapp
Cuff holder.....A. P. Gillen
Cultivator.....O. M. Voiles
Cultivator and cotton chopper, Combined.....
L. J. King
Cultivator, Corn.....H. Funkner
Current motor.....W. Niemeyer
Curtain pole.....W. H. Cutler et al
Curtain stretcher.....C. G. Carlson
Dampers, &c., Supporting device for.....
G. H. Tarleton
Dehorning device.....W. M. Stewart
Dental tool.....E. Forquignon
Derailer.....S. W. Hayes
Dialkyl carbinols, Making.....F. Hofmann
Dispensing and measuring apparatus.....
O. Ziems
Display can holder, Biscuit.....E. L. Reed

Display stand.....J. F. Riedy
Domino.....J. C. Howell, Sr
Door automatic lifting device, Trap.....H. Tesseymann
Door, Flexible.....C. O. Dodge et al
Door or window securer.....G. F. Fay
Drafteye.....G. Walker
Draw bar centering device.....H. Tesseymann
Dredge.....W. A. Collins
Dumb waiter shaft.....G. Geraerdt
Duplicating apparatus.....A. D. Klaber et al
Dye and making same, Beta naphthol azo.....
K. Elbel
Dye and making same, Black disazo.....
K. Schirmacher
Dye and making same, Blue sulfur.....K. Elbel
Dye and making same, Violet sulfur.....
A. Schmidt
Dyeing, &c., machine.....J. W. Fries
Ear and bail for culinary vessels.....J. Stuber
Egg case.....D. M. & T. W. Rundle
Egg case, Folding.....R. J. McIntosh
Electric battery.....A. Gabrielson
Electric brake.....E. R. Gill
Electric compensator.....E. O. Schweitzer
Electric current governor.....W. J. Richards
Electric light socket, Incandescence.....
L. H. Stuart
Electric motor.....J. H. Bryson
Electric motors, Automatic current regulator
for.....A. Churchward
Electric switch, Quick break high tension.....
H. K. Gardner
Electrical connector.....H. Krantz et al
Electrical controlling apparatus.....G. H. Hill
Electrical machine frame.....F. A. Pocock
Electrical outlet box.....E. W. Muller
Electrode, Therapeutic.....G. H. Day et al
Electromagnetic waves, Adjustable bolometer
detector for.....C. K. Sallsbury
Elevator lock.....2 pats.....R. J. Roulo
Elevator safety clutch.....A. Whelan
Engine.....G. C. Cannon
Engine igniting device, Internal combustion.....
F. Reichenbach
Engine muffler, Internal combustion.....
F. Lamplough
Engine speed regulator, Explosive.....K. Reinhardt
Engine starter, Gas.....J. B. Morrison
Engine super heater, Traction.....E. Huber et al
Extension table.....J. F. Arnold
Eyeglass nose guard.....W. D. Fennimore
Eyeglasses, spectacles, or the like, Mounting
for frameless.....J. E. Boyle
Feed bag.....T. E. Burrough
Feed water regulator.....J. W. Lytton
Fence lock, Wire.....C. A. Brown et al
Fence post, Cement.....B. H. McMillan et al
Fertilizer distributor.....J. Blue
Fertilizer distributor.....M. H. Meyer
Filter plate.....G. W. Gerlach
Fire escape.....B. B. Briggs
Fire escape.....O. Ewers
Fire extinguisher.....A. C. Battelle
Fireproof shutter.....F. P. Schroder
Fish bar clamp.....W. S. Wootton
Fish line float.....W. H. Jacoby
Fish plate clamps, Implement for adjusting.....
W. S. Wootton
Fishing reel.....H. T. Howard
Fishing reel.....A. F. & W. Meissebach, Jr
Fishing tackle.....T. Rud
Flash pan, Automatic.....G. P. Wrigley
Floor and bedstead, Combined.....J. Pejchar
Flower pot clip.....J. A. Kramer
Fruit grader, reissue.....R. Strain
Fuel and making same, Artificial.....
G. W. Herbein
Funnel, Automatic.....R. L. McEwen
Fuse switch box, Electric.....L. W. Downes
Garment press.....W. T. O'Brien
Garment supporter and holder.....C. C. Spengler
Gas burner.....J. B. Salo
Gas burner.....M. J. O'Reilly
Gas burner attachment.....W. Kohn
Gas burner, Oil.....J. L. Hague
Gas burners, Mantle for incandescence.....
M. Offenberg
Gas generating apparatus, Acetylene.....
J. J. Hendler
Gas generator, Water.....A. G. Glasgow
Gas pressure safety device.....C. Holmok
Gas producer.....S. T. & C. H. Wellman et al
Gas producer poker.....W. B. Hughes
Gas through purifiers, &c., Valve for control-
ling the flow of.....T. Redman
Gate.....J. B. Miesse et al
Gear for reciprocating movers, Equalizing.....
M. Neumayer
Gearing, Change speed.....W. F. Rice
Glass grinding machine.....C. L. Goehring et al
Glass molding apparatus.....G. A. Marsh
Governor, Centrifugal 2 pats.....O. Junggren
Grate.....A. E. Johnson
Guns, Single trigger mechanism for double
barrel.....J. C. Broyles
Hackling machine.....E. C. Crepy et al
Halter.....H. H. Spohn
Handle bar, Spring.....J. H. Dunstond
Harvester counting mechanism, Grain.....
J. Nicht
Hat.....C. T. Fergusson
Hat fastener.....H. W. C. von Castens
Hay ricks, &c., Apparatus for fastening or
tying.....J. W. Harrington
Heater.....N. W. Dempsey
Hinge, Separable.....G. H. Schiek
Hoisting and conveying apparatus.....
E. M. Holmes
Hoisting apparatus.....L. Moss
Hook and eye.....B. Freedlander
Horse blanket.....E. Weldy
Hose coupling.....J. Szepe
Hydrocarbon burner.....C. F. Capell
Hydrocarbon burner, reissue.....K. L. Leahy
Hydroxyalkylanilin, Making.....
G. W. Behaghel et al
Incubator heating apparatus.....G. R. Caviness et al
Indigo, Making.....R. Kniettsch et al
Insecticide.....J. H. White

Issued January 3, 1905.

MECHANICAL PATENTS.

- Instrument or other case..... G. Rehmann
 Insulating and suspending device..... J. Sachs
 Insulating material and producing same..... F. H. Bruening
 Insulators to cross arms. Device for attaching..... F. M. Locke
 Internal combustion and air engine. Combined..... H. F. Wallmann
 Ironing board and step ladder. Combined..... J. McKellan et al
 Irrigating apparatus..... J. H. Martin
 Jar wrench..... J. H. Zesiger
 Knitting machine stop motion..... F. S. Forry
 Lacing hook setting machine..... I. F. Peck
 Lamp and shade holder. Electric..... L. H. Perkins
 Lamp. Electric arc..... A. W. Hendricks
 Lamp. Flash..... I. G. McColl
 Lamp holder..... A. C. S. Rue
 Lamp or generator. Acetylene..... E. Moreau
 Lamp post. Street..... W. W. Sturgis
 Lamp socket. Incandescent..... 2 pats
 Lamp socket. Shade holding..... H. T. Paiste
 Lamps and energizing and lighting same. Means for supporting electric..... W. H. Wilkinson
 Lantern..... W. H. Foulkes
 Last. Shoe..... W. C. Porter
 Level. Line sighting..... T. Sandbrook
 Level. Plumb..... W. C. Miller
 Linoleum. Making..... L. W. Seiser
 Linoleum. Manufacture of..... F. O. Gripp
 Linotype machine..... J. R. Rogers
 Liquid separator. Centrifugal..... J. H. F. Dierks et al
 Loading device..... E. B. Nelson
 Lock..... W. R. Tabb
 Lock..... F. Uhlri
 Locomotive..... G. Thoret
 Locomotive tire gage..... J. B. Quinn et al
 Log turning mechanism..... W. M. Wilkin
 Loom for weaving pile fabric..... W. G. Hartley
 Loom friction let-off mechanism..... T. Hudson et al
 Loom lug strap holder..... M. L. Stone
 Loom shuttle checking means..... J. C. Edwards
 Loom stopping device..... T. Howard
 Loom take-up mechanism..... W. S. Southwick
 Lubricator..... J. A. Place
 Magnesium. Production of metallic..... I. L. Roberts
 Mail bag catching device..... A. Johnson
 Manacle..... A. L. Nelson
 Manifold device..... B. J. Rosewater
 Manure loader..... A. S. Milne
 Massage apparatus. Electromechanical vibratory..... C. Adams-Randall
 Massage. Electromechanical apparatus for vibratory..... C. Adams-Randall
 Mattress guard for beds..... S. Reed
 Measuring vessel..... C. H. Bond et al
 Mechanical movement..... C. E. Sandstrom
 Metallic mixtures for printers' types, bearings &c. Preparing..... C. A. Meadows
 Metallic oxides with metallic aluminium. Reducing..... F. C. Weber
 Metals from cyanid solutions and regenerating the solutions. Precipitating..... L. E. Porter
 Milk treating apparatus..... T. L. F. Stack
 Milker. Cow..... F. M. Devore
 Millstone dress..... L. B. Woolever
 Mineral or aerated waters. Apparatus for the manufacture of..... J. T. R. de Morley
 Miter box..... M. Nicholls
 Miter joints. Cutting material for forming..... R. Dunne
 Molding machine..... E. Pipher
 Molding sizing and varnishing machine..... A. Sowinski
 Monochloro alpha naphthol and making same..... K. Elbel
 Motor control system..... G. H. Hill
 Motors. Heat radiating device for internal combustion..... H. J. Muntz
 Motors. System of equilibrium for..... A. C. Krebs
 Music roll. Perforated..... H. P. Ball
 Musical instrument..... F. Martienssen
 Musical instrument. Mechanical..... H. P. Ball
 Musical instrument player. Mechanical..... L. U. Jobs
 Nut lock..... G. W. Fewget
 Nut lock..... A. H. Wegener
 Obstetrical device..... M. A. Easterly
 Oiling apparatus. Felly..... D. D. Frisbee
 Oyster tongs pivot bolt..... G. M. Kilmon
 Package fastener..... E. H. Jaquith
 Packaging machine. Automatic..... A. & J. H. McLeod
 Packing. Piston rod..... J. M. Rhodes
 Packing. Rod..... D. H. Stewart
 Packing. Rod..... C. L. Cook
 Padlock. Permutation..... E. Litts
 Pail. Von-spillable milk..... J. H. King
 Painting machine..... D. Robertson
 Paper cutter and printer. Roll..... F. G. Willard
 Paper folding machine..... A. E. Sexton
 Paper, &c., folding machine..... E. H. Cottrell
 Paper for detachable or other leaves of books. Making..... R. S. Robson et al
 Paper machine. Carbon..... W. P. & C. J. Pembroke
 Paste jar..... J. Gleich
 Pattern. Paper..... A. Specht
 Pay roll..... C. T. Chichester
 Peg box..... P. Matusak
 Pen. Fountain..... J. Weeks
 Pen. Fountain..... C. A. Faber
 Phonograph..... E. M. Robinson
 Phonographs. Coin controlled circuit making and breaking apparatus for..... A. W. Cole
 Photographic film cartridge..... W. B. Cline
 Photographic mount and making same..... F. W. G. Chelius
 Picture exhibitor..... C. W. Anderson
 Picture mats. Device for marking..... F. B. Wheat
 Pie making machine..... D. S. Williams
 Piling. Metal sheet..... G. E. Nye
 Piling. Sheet..... R. D. Dobry
 Pill or tablet machine..... F. P. Kirzinger
 Pin..... S. Daucyger
 Pins. Machine for separating, feeding, and driving headless pointed..... W. F. Fraser
 Pipe reamer and thread cutter. Combined..... B. H. Link et al
 Pipe wrench..... F. Scheffer, Jr
 Plant protector..... C. Marsh
 Planter. Seed..... F. E. Comstock
 Plate clamp..... J. C. F. Balze
 Plate clamp..... 2 pats..... W. J. Main
 Plow. Hand..... T. L. Willcox
 Plug..... E. M. Hall
 Poke. Animal..... T. H. Tregellas
 Potato cutter..... I. J. Cissna
 Power at varying speeds. Apparatus for transmitting..... W. F. Rice
 Power transmitting device..... I. Deutsch
 Precious metals from solutions. Recovering..... I. Anderson
 Printer's plate holding clamp..... T. Wensel
 Printing and totalizing lines of numerals. Machine for..... W. W. Childs
 Printing attachment. Paper roll..... G. D. Horton
 Printing attachment. Roll paper..... F. L. Taylor
 Printing color display..... J. H. Swain
 Printing machine. Stencil..... A. B. Dick
 Printing plate holder..... E. R. Storm
 Printing plates or surfaces. Producing..... J. R. Hill
 Printing press..... W. H. Smiley
 Printing press counting mechanism..... C. A. Wright
 Propeller. Boat..... G. F. Atwood
 Propeller. Boat..... J. Salom
 Pulp screen..... O. H. Moore
 Pump. Centrifugal dredging..... C. Lager
 Pump. Dispensing..... W. J. McCahill
 Pumping power..... D. E. Norris
 Puzzle or advertising medium..... F. J. Stone
 Radiator for autocars..... A. Loyal
 Rail joint..... D. C. Bassett
 Rail joint..... J. G. Greter
 Rail joint..... D. P. Springer
 Railway block signal system..... R. E. Land
 Railway cross tie making machine..... W. E. Martin
 Railway crossing. Street..... H. M. Gleason
 Railway. Electric..... J. dela Mar
 Railway safety device..... G. G. Wacker
 Railway signal..... F. L. Fuller et al
 Railway switch..... A. J. Neafie
 Railway switch..... F. Bayless
 Railway switch. Automatic..... R. I. Hill
 Railway switch lock..... D. Boyle
 Railway switch mover. Street..... S. C. Smith
 Rail switch stand operating a point lock and distant signal..... E. M. Robinson
 Railway track fastening..... S. Aubry
 Razor blades. Temporary holder for safety..... C. J. Warren
 Razor. Safety..... H. Herder
 Receptacle. Collapsible..... L. S. Dudley et al
 Reclining chair..... C. H. Bennett
 Refractory material. Manipulation of..... E. Thomson
 Register shutter mechanism..... A. H. Woodward
 Reversing mechanism..... J. H. Werner et al
 Revolver. Self cocking 2 pats..... O. F. Mossberg
 Ring making machine..... O. S. Beyer
 Rope fastener..... J. Leigham
 Rotary engine..... V. Filteau
 Rotary engine..... E. Buchholtz
 Rubbing or polishing machine..... J. H. Witt
 Rug or carpet paste fastening..... C. C. Conner et al
 Rug pin..... F. D. Van Buren
 Rule. Square and miter..... J. Guth
 Sash fastener..... J. D. Sanford
 Sash lock..... W. L. Hall
 Sash support and lock. Window..... J. L. Sumner
 Sash. Window..... L. D. Patten et al
 Sashes or similar purposes. Pulley housing for..... W. Livingstone
 Saw. Drag..... F. J. Sheldon
 Saw handle. Crosscut..... M. E. True
 Saw vise support..... W. M. Potter
 Sawmill machinery..... D. A. Kennedy
 Scale. Automatic indicating and recording car..... G. Goetz
 Scale beam..... S. L. Bunday
 Scale beam. Recording..... A. Nilson
 Scale. Combined weight indicating and weight recording..... G. Goetz
 Scrubbing machine..... H. J. Noll
 Seal press..... J. E. Kirkpatrick
 Seat cushion..... H. S. Hale
 Seed bin. Cotton..... E. J. Afeman
 Seeding machine..... W. S. Graham
 Seining..... A. Yancey
 Sewer system. Septic..... W. A. Reid et al
 Sewing machine cabinet..... S. H. Wheeler
 Sewing machine cloth presser..... C. M. Abercrombie
 Sewing machine hemstitch attachment..... A. Laubscher
 Sewing machine trimmer..... S. H. Wheeler
 Shade rollers. Pawl mechanism for spring..... A. M. Doolittle
 Sharpening the grinding disks of attrition mills. Portable apparatus for..... E. P. Alsted
 Shaving composition..... P. M. Megaro
 Shelf bracket. Hanging..... E. M. Stephenson
 Shuttle operating device..... G. Schwabe
 Sickle and sickle bar..... O. Cook
 Sign..... G. W. Howell
 Sign or advertising device..... H. C. Coultas
 Skirt and garment supporter..... W. G. Johnson
 Sluice gate. Automatic..... A. T. Mirza
 Snap hook..... J. A. Eberle
 Speedometer..... A. H. Brown
 Spindle and bearing..... J. J. & H. E. Hughes
 Spindle driving bands. Mechanism for guiding and applying tension to..... J. Boyd
 Spinning and winding machine. Yarn..... E. Neild et al
 Spinning cotton or other fibers..... W. A. Phillips et al
 Spinning cotton or other fibers. Apparatus for..... W. A. Phillips et al
 Spinning frame top clearer..... W. Allan
 Spinning ring..... F. Potts et al
 Spool holder..... M. B. Kreeger
 Spring fastening device..... K. Tojetti
 Spring roller..... W. A. Hadden
 Square and bevel protractor. Combined..... L. S. Starrett
 Stacker. Hay..... H. W. Swadley
 Stamp affixing machine..... J. P. & S. Farmer
 Stamp. Time..... J. F. Tenney
 Steam boiler..... H. J. Marks et al
 Steam boiler..... G. Linder et al
 Steam generator..... J. C. Wood
 Steam regenerative accumulator..... A. C. E. Rateau
 Steam shovel or the like..... G. W. King et al
 Steam trap..... J. W. Lytton
 Steering device..... J. H. Robinson
 Stereopticon..... A. Schweitzer
 Stiffening material..... E. K. Warren
 Stoker. Underfeed..... E. E. Taylor
 Stove heating drum. Oil..... J. C. Kulp
 Stovepipe holder..... H. I. Kahler
 Strap attachment..... W. H. Coram
 Sulfids from their ores. Apparatus for separating..... J. H. Gillies
 Surgical knife..... L. Lewis
 Suspenders..... J. E. Austrian
 Suspending clamp..... J. Guttman
 Syringe. Fountain siphon..... L. S. Grisell
 Tablet..... H. V. Lough
 Tacking tool. Hand..... H. B. Newton
 Tag fastener..... S. Daucyger
 Talking machine. Disk..... J. Le Mon et al
 Talking machine turn table..... E. R. Johnson
 Tarpaulin. Sheet, cover and roof..... T. N. Wylie et al
 Telegraph circuits. Composite system duplex..... W. E. Athearn
 Telephone apparatus..... O. M. Frykman
 Telephone circuit..... J. W. H. MacLagan
 Telephone exchange switchboard apparatus..... J. L. McQuarrie
 Telephone system supervisory apparatus..... W. W. Dean
 Telephone tablet holder..... J. W. Currier
 Telescope. Prismatic..... H. C. Mustin
 Testing apparatus..... W. J. Keep
 Thermostat..... A. Goldstein et al
 Ticket issuing and recording machine..... J. F. Ohmer
 Tile. Building..... P. J. McGuire
 Tire or other flexible tubular article. Pneumatic..... 3 pats..... A. H. Marks
 Tire shoe protector. Wheel..... C. A. Worthington
 Tobacco pipe..... H. Willis
 Tobacco stemming and booking machine..... P. J. Hart
 Tool. Pneumatic..... R. W. Funk
 Tool. Pneumatic..... H. Leineweber
 Tooth crown grinder..... M. A. Coykendall
 Torpedo adjuster and exploder. Automatic..... I. V. Burris
 Torpedoes. Motive power combustible for automobile..... H. Maxim
 Towel rack..... H. A. Henderson
 Toy bank..... C. L. Mosher
 Track joint..... W. J. Meeks
 Tracker bar..... A. Angstrom
 Traction. Electric..... H. B. Greenwood
 Train stopping system. Automatic..... C. M. Underwood
 Transfer press..... J. R. Hill et al
 Treadle..... A. Tetrault
 Trolley..... J. S. Weekman
 Trolley harp and guard..... S. G. Reynolds
 Trolley wheel. Self oiling..... E. D. McDonald
 Truck and skid. Combined..... N. E. Drury
 Truck. Car..... H. C. Buhoup
 Tube cutter..... G. Wiedeke
 Tube expander and cutter..... H. F. Weinland
 Tube making apparatus..... M. Wilkstrom et al
 Tubes. Device for forming and sizing closed end..... W. C. Anderson et al
 Turbine. Elastic fluid..... C. G. Curtis
 Turbine. Elastic fluid..... E. Meden
 Turbine. Steam..... P. C. Oscanyan
 Turn table..... A. O. Sleutz
 Type writer..... L. Doederlein
 Type writer cabinet..... M. J. Hafgar
 Type writing and adding machine. Combined..... E. N. Miller
 Type writing machine..... G. H. Morse
 Type writing machine..... C. F. Lagauke
 Type writing machine platen equipment..... J. Ziegler
 Umbrella joint..... J. H. Sprague
 Vaccine and making same. Blackleg..... E. M. Houghton
 Vacuums. Apparatus for producing high..... W. R. Burrows
 Valve..... M. E. Layne
 Valve. Blowing engine..... A. T. Keller
 Valve. Motorman's automatic lap..... W. B. Potter
 Valve. Relief..... G. C. Davis
 Valve. Slide..... H. C. Lenderman
 Valve. Stop..... J. Hopkinson et al
 Vapor burner..... D. J. Canchaster
 Vehicle brake..... C. A. Buffington
 Vehicle. Motor..... R. C. Lewis
 Vehicle. Motor 2 pats..... T. L. & T. J. Sturtevant
 Vending apparatus..... 2 pats..... G. C. Elliott
 Vending apparatus. Perfume..... L. L. Martin
 Vending machine. Coin controlled..... J. Anderson
 Wagon. Dumping..... H. J. Heck
 Wall register..... W. J. Mathis
 Walls, &c. Construction of..... J. Kulhanek
 Watchcase..... A. M. Kilberg
 Watchcase..... C. K. Colby
 Water heater..... D. W. Bennett
 Waterer. Chicken..... F. A. Bagley
 Wax emulsion and producing same..... H. H. Church
 Wheel..... A. F. Rietzel
 Wheel..... J. Donovan
 Wheelbarrow..... H. Jones
 Wheelbarrow..... C. A. Baker
 Whip socket and rein holder. Combined..... G. E. Kroning
 Windmill rods to pump rods. Pin for attaching..... W. Hartz
 Window..... F. J. & H. G. Carl
 Window construction..... E. H. Lunken
 Window screen..... D. W. Wadsworth
 Window screen..... A. H. Mix et al
 Window screen..... H. A. Way et al
 Wood carrier..... C. C. Ekholm
 Work table and lap board. Folding..... C. J. Becker
 Wood preserving compound..... A. Macaulay
 Wrench..... R. Burham
 Wrench..... G. E. Dornou
 Wrench..... H. Phelan
 Wrench..... L. T. Steenberge
 Wrench..... C. H. Spaulding
 Wrench..... W. Van Horn
 Yoke. Neck..... T. H. Brigg
 Lamp. Incandescent..... A. H. Selling
 Surrey body..... D. L. Tschantz
 Waffle iron cover..... A. Audresen

DESIGNS.

Conveyer, Portable.....C H Spence
Cooker, Steam.....J. Kingory
Cork for the manufacture of cork fabric.
Treatment of.....R. A. Grimoire-Sanson
Corset.....L. Perotti
Cotton handling apparatus, Pneumatic.....
.....R. B. Lumpkin
Cotton picking machine.....J. N. McEachern
Cow tail holder.....M. W. Hyenga
Cradle, Automatic.....L. Perotti
Cream separator, Centrifugal.....G. T. Rennfelt
Cultivator or plow frame.....J. F. Bowers
Cultivator tooth.....S. E. Auker
Current controlling system.....A. C. Easwood
Current meter.....W. S. Blauvelt
Current motor.....G. Samuelson
Curtain appliance, Automatic safety.....
.....H. W. Garney et al
Dental mouth mirror.....A. Littauer
Dental tool holder.....R. M. Dunlevy
Desk.....E. A. Cannon
Distillation and treatment of crude bituminous material.....H. W. Ash
Distilling crude bituminous material.....
.....H. W. Ash
Door closing device, Double.....F. M. Edmonds
Door for cold storage rooms, Rotary.....J. F. Drucker
Door, Grain.....U. M. Bogard et al
Door guideway, Sliding.....N. C. Schommer
Door or gate, Laterally moving.....J. M. Cornell
Door releasing device, Electrical.....F. M. Edmonds
Dough mixing machine.....L. St. Jean
Dovetailing machine.....F. J. Renz
Draft equalizer.....C. Wernecke
Drawing table.....J. D. Lugosch
Dredges, Tumbler for.....R. G. Hanford
Drier.....C. H. Caspar
Drill frame.....H. F. Moore
Drill or tool holder.....A. Jones
Drill shoe pressure device.....W. Feizer
Drilling and sampling apparatus.....R. Baggeley
Drip cup.....L. M. Beck
Dyeing.....H. Mann
Easel and hanger for cups and saucers.....J. E. Twitchell
Electric generating unit.....S. Shaw
Electric machine brush holder, Dynamo.....F. M. Conlee
Electric plug.....N. B. Raymond
Electrical machine, Static influence.....E. Thomson
Electrical machines, Means for ventilating.....A. Aichele
Electrical resistance testing apparatus.....J. B. West et al
Electrodes, Making spongy lead for secondary battery.....C. J. Reed
Electrolytic apparatus.....C. P. Townsend
Electrolytic process.....C. P. Townsend
Elevated carrier.....L. F. Wilson
Engine.....G. H. Collier
Engine or motor starting mechanism.....W. H. Hagspiel
Engine sparking igniter, Internal combustion.....H. Devlin
Engine speed regulator, Explosive.....A. Bougault
Engines, Mechanical movement for gas.....H. M. Svebilis
Envelop.....L. Reinhold
Evening coupling.....O. A. & J. B. Fladby
Excavating apparatus.....G. H. Hulett
Excavator and loader.....J. Sampson
Extraction of soluble material, Apparatus for continuous.....E. Bataille
Fabrics with fluids, Apparatus for treating.....J. Gebauer
Farm gate.....F. Hopkiss
Feed water heater.....R. H. Fraser
Fence post.....G. L. Turner
Fence post.....J. Rogers
Fence post.....C. A. Chamberlin
Fence tie forming die.....J. Bugbee et al
Fence tool, Wire.....L. H. Kennard
Fertilizer distributor.....C. B. Rozar
Fertilizer distributor.....J. M. Brasington
Figured fabric.....J. Morton
File, Card.....L. Senge
File, Letter.....L. Senge
Filter.....C. O. Wahnsiedler
Filter.....F. O. & E. Bendix
Filter and purifier.....F. S. Blackmar et al
Fire escape.....B. B. Briggs
Fire escape.....B. Johnson et al
Fires on ships or the like, Means for extinguishing.....H. Gronwald
Fireproof buildings, Wall for the interior of.....F. C. Caine
Fireproof ceiling or the like.....J. Nolte
Fireproof window, Automatic.....J. W. Watkins
First aid packet.....W. M. Davis
Fish hook.....G. R. Mathews
Fishing tackle.....W. Kramer
Folding chair.....J. H. Stiggleman
Forgings, Machine for removing scale from.....W. C. Kelly et al
Fruit picker.....A. B. Pratt
Furnace.....C. McMillan
Furnace door opener.....E. N. Mummy et al
Furnaces, Frame for covers for crucible steel melting.....C. W. Cowan et al
Galvanic battery.....C. J. Reed
Game, Educational.....R. W. Mansfield
Garbage burner and water heater, Combined.....J. J. Dube
Garbage can.....N. N. S. Matcovitch
Garment clasp.....J. H. Pithey
Garment hanger.....I. Mendel
Garment supporter.....E. C. Woolley
Gas burner cut-off, Automatic.....H. Smith
Gas engine.....G. A. Brander
Gas meter, Constant level.....J. R. Dupuy
Gas or other fluid meters, Coin-free mechanism for.....B. R. Beale et al
Gas or vapor burner.....A. Nurnberg
Gate.....K. K. Lerol, Jr
Gear, Reversing and variable speed.....J. O. Hobbs
Glass blowing machine.....R. J. Main
Glass bodies, Apparatus for finishing pressed.....J. Hecker
Glass clamp.....W. A. Fair
Glass, Forming sheet.....H. J. Hays
Glass pot furnace.....W. T. Nicholls
Gold saving apparatus.....E. S. Kelley
Governor, Automatic.....G. F. Welliver

Governor, Engine.....D. W. Payne
Grain cleaner.....L. Holland-Letz
Grain cleaner.....W. C. Schad
Grain drill gang press attachment.....W. A. Van Brunt
Grinding or polishing roll.....C. B. Wattles
Hair drying apparatus.....O. Peter et al
Harrow, Sulky spring tooth.....C. S. Sharp
Harvester bundle carrier, Corn.....H. R. Ingledue
Harvester, Corn.....J. E. Goodhue
Hat brim curling machine.....R. G. & G. Segsneider
Hat fastener.....L. Perotti
Hat pin & attachment.....C. T. Hofer
Hat stretcher.....M. W. Boyle
Headlight.....F. Buchanan
Heating, Adjustable pressure.....E. H. Gold
Heating appliance.....J. D. York
Heating furnace.....A. L. Yates
Hoisting apparatus.....A. M. Green
Horn Amplifying.....C. J. Eichhorn
Horse exercising apparatus.....W. Smith
Horse releaser.....S. W. Duncan et al
Horseshoe attachment.....E. L. Abbott
Horseshoe, Cushion.....A. Simmons
Hose coupling.....C. B. J. Witmond
Hot air register, reissue.....T. M. Dils
Hydrocarbon burner.....R. Matheson
Hydrocarbon burner, 2 pats.....H. F. Blanchard
Induction coil.....J. G. Meyers
Logot charging crane.....C. L. Taylor
Insecticide.....R. L. Odom
Insulated railway rail joint.....B. G. Braine
Irrigating apparatus.....W. F. Pope
Jar and closure therefor.....R. H. McCoy
Jar and dipper for serving crushed fruit or the like.....R. Faries
Jar closure.....A. L. Weissenthauer
Jar holder.....F. M. Matteson
Jar wrench.....J. Nelson
Jewelry fastening.....J. N. Provenzano
Journal box.....T. E. Amburn
Keyed instrument.....E. Laemehirt
Knife handle.....G. W. Hodges et al
Knob, Screwless.....A. Arens
Knockdown brace, Adjustable.....G. M. D. Heard
Lace trimming making machine.....M. N. Aaron
Lamp and burner for lighting purposes.....A. Nurnberg
Lamp bracket, Electric.....E. H. Lux
Lamp, Electric arc 2 pats.....B. A. Stowe
Lamp rheostat, Electric arc.....B. A. Stowe
Lamps, Automatic suspension and contact appliance for electric arc.....J. Stevenson, Jr
Lantern, Magic.....W. Rausch
Latch, Spring.....F. Fessler
Lead, Electrolytically refining, reissue.....A. G. Betts
Lead ores, Reducing.....P. G. Salom
Lead silicofluoride Making.....W. Mills
Lead silicofluoride, Making.....W. Mills
Leaf spring, 2 pats.....S. W. Baldwin
Leather or like material, Apparatus for stretching and drying.....P. H. Grimm
Leather stretching device.....G. B. Rowbotham
Level, Fluid or spirit.....B. Kern, Jr
Lime grout, cement, and the like, Apparatus for forcing.....E. W. Moir
Line spacing device.....W. Benicke et al
Liquid dropper.....L. Perotti
Liquid heater or cooler.....J. G. Bouchard
Lock.....L. Faust
Lock.....B. F. Merritt
Logging cars, &c., Holdfast device for.....E. W. Fuhr
Loom.....W. R. Burrows
Loom for weaving embroidered goods.....J. B. Monnet et al
Loom for weaving pile fabrics.....W. G. Hartley
Loom harness.....P. A. Wagner
Loom let off and take up mechanism.....W. R. Burrows
Lubricating.....W. J. F. de Rijk
Lubricator.....C. M. Byrd et al
Lubricator.....T. J. Hart
Lumber handling apparatus.....G. E. Dupee
Malt kiln.....J. & A. J. Braun
Maltling drum.....F. B. Giesler
Manifolding apparatus.....M. F. Horine
Massage apparatus, Pneumatic.....I. Rhodes
Match box.....E. C. Carlis
Match making machine.....J. C. Donnelly
Material and manufacturing same F F Pulver
Mechanical movement.....H. Brammer
Mechanical movement, 2 pats.....P. Goldmann
Mechanical movement.....J. J. Rexroth
Metal polishing machine.....H. Schuessler
Metal tubes for the manufacture of paint brushes, &c., Grooving or necking.....A. L. Watkins
Metal values contained in slags and mine waters, Recovering together the R Baggeley
Metal wheels, Machine for manufacturing.....J. H. Haskins
Metals from their ores, Obtaining S Peacock
Metallic compounds from solutions, Recovering.....S. W. Vaughan et al
Metallic tie.....J. J. Evans
Mine cage.....P. Thelmann et al
Mineral wood, Manufacturing T. B. Parkison
Miter box.....A. von Guenten
Molder's implement.....E. Iutterly
Motor controller.....C. E. Barry
Muffler, Exhaust.....A. Buchner et al
Music leaf turner and holder.....H. O. Stevens
Music roll perforating device 2 pats H P Ball
Music sheets, Driving gear wheel for.....A. Junghans
Musical instrument, Automatically played.....E. Hopkinson
Musical instrument, Self playing.....H. W. Shonnard
Musical instrument, Stringed H. F. T. Muller
Musical instrument, Strunged L. E. Watford
Needle threader.....R. D. Melrose
Needle threader.....W. P. Slensby
Nut, Axle.....B. G. Butler
Nut lock.....J. C. Gary
Nut lock.....M. P. Carpenter
Oil burner.....R. B. De Remer et al
Oil can.....W. Morris et al
Oil cup.....W. H. Wilkinson
Oil cup.....L. S. Gardner
Oil separator.....A. C. Calkins
Ore crushing mill, Roller.....G. Johnston
Ore for metallurgical purposes, Forming blocks of.....A. Ronay

Paper box or receptacle.....J. F. Donley
Paper, Carbon transfer.....C. L. A. Brasseur
Paper removing apparatus, Wall.....P. Ways
Paper spool.....J. O'Connor
Pawl mechanism, Ratchet.....H. G. Beede
Penfeeder, Fountain.....G. S. Parker
Penholder.....W. Huber
Photographic developing apparatus.....C. H. Shaw
Photographic plates or films in daylight, Apparatus for developing and fixing S Hall et al
Photographic printing apparatus.....N. D. Wyman
Piano pedal mounting.....G. Bjorklund
Piano player.....F. Sheppy
Piano playing attachment roller A. F. Larson
Picture apparatus, Moving.....C. F. Jenkins
Picture frame.....G. K. Kelsea
Picture support.....J. W. Thompson
Pie dampening device.....P. Kuschig
Pile fabrics, Machine for cutting open the weft loops of.....P. Hertzog
Pile turning device.....C. L. Taylor
Pillar.....A. Vetterly
Pipe cutter, Cast metal.....J. F. Oliver
Pipe root cutter, Drain.....W. Schuessler
Pipe wrench.....I. D. Green
Pipes, Automatic thaw out for water.....W. J. Robinson
Pitman coupling.....O. A. Johnson
Plane.....J. A. Traut
Plane.....O. Bjordal
Plane, Bench.....A. St. John
Planing machine.....H. Parsons
Planter.....S. H. Leonard
Planter, Corn.....M. Zimmerman
Plow, Gang.....H. C. Lucke
Plow, Reversible disk.....R. C. Belk
Plug, Heaving.....G. W. Barnes
Pneumatic spring.....H. E. Irwin
Polishing tool.....C. A. L. Saunders
Power generating apparatus.....E. Thomson
Press drill.....C. H. Peiton
Printing and folding machine.....W. Scott
Printing machines, Revolving carrier for the numbering heads for.....E. J. Barker
Printing press attachment.....J. H. Tift
Printing press attachment.....S. R. Kramer
Puff box.....A. Hosmer
Pump, Direct acting.....J. T. Jennings et al
Pump, Double acting.....W. W. Robinson
Punching bag apparatus, Coin controlled.....C. Molitor
Punching machine.....J. E. Melvin
Puzzle.....G. R. Ford
Puzzle or analogous device.....W. C. Beers
Radiator section mold.....T. Holland
Rail joint.....N. Benjamin
Rail joint.....E. L. Hall
Rail joint and tie, Combined.....T. B. Patton
Rail securing device.....J. H. Barr
Rail system, Third.....G. D. Esposito
Railway rail stay.....E. Laas et al
Railway rail stay.....H. H. Sponenberg
Railway signaling.....W. S. Berry
Railway switch and signal.....L. Griffith
Railway system, Electric.....G. L. Campbell
Railway trains, Device for automatically stopping.....L. Slingland
Razor.....L. S. Morgan
Refrigerator building, reissue.....J. Wills
Register.....J. A. Tilden
Riveting device.....C. T. Umsted
Roadway.....3 pats.....D. N. Long
Roadway, &c.....D. N. Long
Robe and vehicle cover, Storm.....H. M. Burke
Rock or like drill.....W. Wilson
Rolling machine, Metal.....C. Paouty
Roofing, Device for attaching.....F. S. Howard
Rope clamp.....G. Agobian
Rotary drier.....F. A. Wegner et al
Rotary engine.....I. F. Parmenter
Rotary engine.....B. Estby
Rotary furnace.....H. C. Davey
Rubber articles, Manufacturing rubbered cord for use in.....T. Sloper
Rust preventing compound.....H. J. Romick
Safe or vault locking mechanism.....I. H. Williams
Sash fastener.....N. J. Lindbeck
Sash, Window.....S. E. Roe
Saw guide, Band, 2 pats.....F. T. McDonough
Saw upper adjusting device, Band.....E. Harrold et al
Scaffold, Portable.....J. G. Hehr
Scenery and preparations therefor, Theater.....V. Sellier
Screen.....G. W. Cross
Screw press.....J. M. Herron
Seal.....E. Buroker
Seal lock.....B. R. Draudt
Seal press.....F. W. Brooks
Seat, paint box, and easel, Combined.....H. G. Burgess
Sewing or other machines, Spring motor for.....J. Teel
Shaft, Flexible.....R. M. G. Phillips
Shearing and punching machine C Wunderlich
Sheet metal can.....A. Wulff
Shingle sawing machine.....L. B. Brault
Shoe fastener.....A. Mikelson
Shoe tongue retainer.....W. J. Andrews
Shoe uppers, Machine for automatically lacing.....W. A. Smith
Shovels or dredges, Means for operating dipper handles for.....E. S. Bennett
Shuttle binder.....H. B. Beckman
Shuttle spindle.....N. Foerster
Skirt hanger.....C. L. Horton
Skirt hanger.....R. H. Knight
Sleigh.....L. Norman
Smelting ore.....J. Gayley
Smoke consuming furnace.....O. E. Neumann
Soap grinding mill.....C. E. Drake
Sodium acetate, Making.....I. P. Lihme
Sound recording machines, Cutting tool for.....E. R. Johnson
Sound records, Affixing tablets to.....E. R. Johnson
Spectacle shade.....J. F. Wynkoop
Speed indicator.....F. E. Wolf
Spike.....S. W. Higgins
Spike puller.....E. Gordon
Spindle.....W. Gibson
Spinning ring traveler.....C. E. Trowbridge
Stacker, Hay.....L. Oberwetter
Stamp, Marking.....T. C. Durham
Stamp mill latch finger.....M. P. Ross
Stanchion.....E. Prescott
Steam boiler.....W. H. Alderdice
Steam generator.....L. J. H. Pagels

Steam trap.....F. M. Campbell
Steel, Manufacture of tool.....J. A. Mathews
Stereoscope.....W. G. Passmore
Stereotype cutting machine.....J. W. Kerwin
Stethoscope.....H. G. A. I. Wiedler
Stiffeners, Machine for manufacturing.....W. Webster
Stock rack, Adjustable.....R. H. Quick
Stove or range, Cooking.....T. E. Nininger
Stovepipe, Adjustable.....C. A. Boyer et al
Strap attaching device.....J. V. Markitan
Street sprinkler.....J. C. Wilson
Sugar juice, Purifying.....H. Breyer
Surgical articles, Tube for containing.....S. W. Williams
Swab holder.....A. B. Elliott
Switchboard, Multiple transfer.....C. B. Smith
Syringe.....A. Molinari
Syringe.....A. B. Jamison
Table.....W. F. Marvin
Take up, Automatic.....A. D. Plowden
Talking machine cabinet.....L. F. Douglass
Talking machines, Device for releasing reproducers from records of F & W. Lochmann
Telegraph transmitting apparatus or the like, Apparatus for perforating the type bands for automatic.....A. Franke et al
Telegraphic transmitter, Keyboard M. Kotyral
Telephony.....A. Meinema
Testing machine or scale.....W. J. Trench
Theaters, &c., Panic guard for.....J. P. Page
Thermoelectric element.....A. L. Marsh
Thread dressing machine G. A. Fredenburgh
Thread, Manufacture of silk like.....R. Muller
Threshing machine feeding device.....G. M. Stevens et al
Tie plug machine.....R. K. Cronkwhite et al
Tire clamp, Pneumatic.....H. W. Cagle
Tire, Cushion.....W. H. Emond
Tire, Rubber.....C. H. Bryan
Tire, Vehic.....W. F. Howe
Tire, Wheel.....A. J. White
Tires, Apparatus for applying outside rubber.....C. Andervert
Tires to wheel rims, Means for fastening.....C. G. Fawkes
Tobacco cutter and pipe filler.....A. McLinnis
Tool, Folding.....A. T. Bishop
Tool holder.....H. Langer et al
Tortillas, Manufacture of.....C. H. Workman et al
Toy cannon.....R. F. Mitchell
Toy vehicle.....P. Erhardt
Tray.....E. N. Burke
Trolley.....W. W. Mercer
Trolley catcher and retriever.....C. F. Wilson
Trolley pole controller.....A. W. Harrison et al
Trousers stretcher.....D. P. Cooper
Truck.....C. H. Gale
Truck automatic brake, Hand.....C. J. Stuart et al
Truck, Car.....W. P. Bettendorf
Trunk.....M. B. Behrman
Tube making machine.....J. A. Stock
Turbine engine.....S. J. Webb
Twine holder.....W. G. Fuller
Type casting and composing machine.....E. A. Osse
Typewriting machine.....G. H. Smith
Typewriting machine.....J. Felbel
Typewriting machine.....C. H. Shepard
Typewriting machine type bar bearing.....E. G. Latta
Umbrella.....L. Schuller
Umbrella, Folding.....H. C. Allen
Unloading apparatus.....B. Bertke
Valve, Automatic cut-off.....J. Anderson
Valve, Duplex feed.....H. R. Mason
Valve, Steam engine.....F. O. Ball
Valve, Steam engine.....C. E. Lowe
Valve, Tank.....E. L. Burchett
Vaults, Mold for making burial.....H. Kinney et al
Vehicle.....L. Norman
Vehicle body.....L. Priest
Vehicle driving gear, Motor.....W. H. Douglas
Vehicle Motor.....L. S. Flatow
Vehicle top support.....F. F. Heiselman
Vending machine, Coin-controlled.....R. S. Prichard et al
Vessel lining.....M. E. Spofford
Wagon, Dumping.....P. Kenenah
Wagons, Device for unloading or loading racks and boxes from.....A. M. Hill
Warp stop motion for warpers, Automatic.....A. S. owan
Water closet seat.....M. D. Helprich
Water heater.....R. H. Fraser
Water heater and garbage crematory, Combined.....J. S. Erickson
Weighing machine or meter, Tip tank.....W. H. Pearce
Well drilling appliance.....J. H. Compton
Well sinking apparatus.....H. G. Johnston
Whiffletree clip and hook.....J. F. Guffin
Wick raiser for oil burners.....T. M. Stokoe
Windmill regulator.....T. A. & J. G. Overby
Window construction.....E. H. Lunken
Window ventilator.....J. W. Jones et al
Wire reel.....C. W. Stark
Wire stretcher.....O. D. Funk
Wire stretcher.....G. W. Harlan
Wood scraper.....J. R. Ellis
Woodworking tool.....A. Traut
Wrench.....C. H. Felten
Wrench.....F. W. McNabb

DESIGNS.

Braid.....M. Mittendorf
Brushes, mirrors, or similar articles, Frame for.....R. R. Debacher
Ring.....A. Schicklering
Spoons, forks, or similar articles, Handle for.....W. C. Codman
Stove.....F. J. Frey et al
Stove, Heating 2 pats.....W. Thompson et al
Stove or range, Cooking.....W. Thompson et al
Talking machine cabinet.....E. R. Johnson
Telephone toll apparatus casing.....G. A. Long
Wall covering.....T. Cleary

Issued January 10, 1905.

MECHANICAL PATENTS.

Abrading machine.....E. L. Buzzell
Abrasive material to metal bodies, Fastening.....E. G. Case

- Acid. Making hydrochloric W. T. Gibbs
 Acids. Means for elevating S. Hughes
 Adhesives. Producing H. K. Brooks
 Agricultural implement riding attachment N. H. Bloom
 Air cooling apparatus S. C. Davidson
 Alkaline solutions of soda chromate. Treating W. T. Gibbs
 Amalgamating apparatus J. Jean et al
 Amusement. Whirlpool for public J. A. Bruce
 Animal dipping machine C. A. Newberry
 Animals. Freeing the soil, trees, or plants from harmful S. Lokuciejewsky
 Anvil, vise, and drill. Combination J. Weathers
 Auger. Earth W. E. Robertson
 Automobile E. R. Hewitt
 Bag, bale, &c., tie G. J. Schuhmacher
 Barrel J. T. Melson et al
 Barrel. Hat C. E. Fucigna
 Basket C. Seitz
 Battery plates. Protective covering for storage A. Meygret
 Battery zinc F. J. Delavie
 Bearing. Center. 2 pats. J. C. Barber
 Bed. Divan folding W. Thompson
 Bedstead and bed bottom. Extensible L. Pieper
 Belt conveyer apparatus T. Robins, Jr.
 Belt fastener J. C. Conn
 Belt guide W. C. H. & R. A. Caswell
 Bilge block J. Hickler
 Bin gate R. C. Dugan
 Binder. Loose leaf G. W. Sheridan et al
 Binder reel R. R. Soberg
 Binder. Temporary W. C. Abbott
 Blank feeding apparatus C. B. & C. D. McDonald
 Blank holder G. W. Campbell
 Blinds rising by the wind. Device for preventing shop window S. S. Willmott
 Blotter. Revolving E. M. Wilson
 Boat. Sail J. P. Pool
 Bobbin J. F. Williams
 Boiler furnace. Steam T. Lennon
 Book. Bill M. L. Schultze
 Book. Blank J. B. Aichholz
 Book. Credit coupon L. P. Routt
 Book stack H. P. Macdonald, Jr.
 Books, &c. Expansive locking clasp for J. G. Glifford
 Boring device. Square hole E. Auerbach
 Boring machine W. Harker et al
 Bottle. Antirefiling L. Kuntz
 Bottle. Antiseptic feeding C. W. Tindling
 Bottle closures. Machine for applying H. Coale et al
 Bottle nipple holder. Nursing F. C. Brooke
 Bottle. Non-refillable O. J. Schinck
 Bottle. Non-refillable P. B. T. Berner
 Bottle. Non-refillable H. P. Hall
 Bottles. Apparatus for simultaneously corking a number of S. Hyden et al
 Bowling alley P. A. Haberl
 Bowling alley. Automatic T. & F. R. McNamara
 Box or receptacle W. R. Comings
 Brake hanger. Non-chattering E. H. Scofield
 Brake operating mechanism C. Mawer
 Branding apparatus. Electric D. C. Sprecher
 Brush holder C. L. Staver
 Bucket. Clam shell G. H. Williams
 Buggy boot attachment C. D. Smith
 Buggy top support E. H. Mason
 Bundle carrier E. M. Comstock
 Burglar alarm O. B. Hanson
 Button attachment A. H. Hope
 Button fastener J. C. Morrison
 Cable reel C. W. Larson
 Cake icing machine W. S. Ivis
 Calculating machine driving mechanism F. C. Rinsche
 Camera drop front J. S. Wright
 Camera. Panoramic C. Mills
 Can testing machine P. Kruse
 Canning machine or apparatus S. J. Dunkley
 Candlestick W. Ferrier
 Cane A. Wagner
 Car P. P. Sturdevant
 Car brake mechanism. Railway W. W. Annable
 Car coupling J. A. Hinson
 Car conpling. Railway A. Fodor
 Car door fastener T. W. Saling et al
 Car draft gear. Railway H. M. Pfleger
 Car life preserver. Railway W. W. Annable
 Car roof P. H. Murphy
 Car spring. Railway S. M. Lillie
 Car ventilator J. E. Armstrong
 Cars, &c. Bracket step for street R. Dunning
 Cars or other road vehicles. Life guard for electric tram W. A. & G. A. W. Turner
 Carburizer H. A. Burch
 Carpet sweeper W. D. Hodson
 Carriage top box loop F. A. Neider
 Cart. Hand M. H. Daley
 Cartridge T. S. King
 Cattle guard O. B. Dillingham
 Cattle guard G. S. Cooper
 Cheese cutter centering device M. B. Irvine
 Chuck for holding abraded wheels H. K. Bacon
 Churn. Centrifugal F. A. M. Arnberg
 Chute. Coal F. S. Converse
 Cigar boxes. Combined flap and extension back for I. Steiner
 Cigarette machine D. J. Campbell
 Cigarette machine 2 pats. P. A. Lawless
 Cigarette or cigar mouthpiece G. P. Butler
 Cigarette tip H. P. Strause et al
 Cigarettes or cigars. Machine for making and applying mouthpiece to G. P. Butler
 Clutch and brake. Friction F. Kirk
 Clutch operating device. Pneumatically actuated A. P. Schmucker
 Coal scuttle and sieve. Combined E. J. Turlington
 Cock. Rotary funnel O. Link
 Coffee urn G. G. Schenck
 Coke oven charging machine J. Haug
 Concentrating table shaker J. Klein
 Concrete piles and preparatory piles therefor. Forming 2 pats. C. Shuman
 Condenser reversible current apparatus J. Todd
 Conveyer W. Carr
 Conveyer A. Beechey
 Conveyer or carrier H. D. Conway
 Corn chopping machine C. Scheetz
 Corset E. Calkins
 Cotton condenser attachment C. A. Brown et al
 Cotton picker M. E. Lehmann
 Coupling E. Vogel
 Crate. Packing E. G. Quackenbush
 Crushing mill. Roll T. L. & T. J. Sturtevant
 Cultivator attachment B. P. Collier
 Cultivator for trees D. Robertson
 Current meter W. S. Blauvelt
 Curtain pole J. Kroder
 Cuspidor M. S. Hart
 Cutter head dust collector. Reciprocating F. A. Noble
 Dauber. Fountain F. D. E. Robbins
 Developer and portable dark room. Mechanical H. A. Stevenson et al
 Dish washing machine E. Crosby
 Dispensing can T. W. Alexander
 Door. Air J. T. Deviese
 Door check C. Ellinger
 Draper J. C. White
 Drawing frame L. W. Penney
 Dredge J. Henderson et al
 Drill core lifter. Diamond D. Dupuis
 Drill machine rake device J. von Dziembowski
 Dust in dust carts. Device for distributing H. Freise
 Duster. Face and neck W. T. Hodgen
 Dye and making same. Anthraquinone H. Weltz
 Dye and making same. Violet sulfur A. Luttringham
 Electric battery F. P. Dewey
 Electric cable coupling J. J. Dossert
 Electric controller A. Sundh
 Electric furnace D. R. S. Galbraith
 Electric machine connection board. Dynamo J. G. Crawford
 Electric meter bearing F. M. Vogel
 Electrical wave transmission D. M. Therrell
 Electrode E. F. Price
 Electrolysis G. Rambaldi
 Elevator signal system B. J. Foley
 Embossing machine. Hydraulic J. W. Nelson
 Embossing press S. Curtis
 Enamelware. Manufacture of J. F. Kenkel
 Engine counterweight attachment. Gas F. J. Miller
 Engines. Mixing apparatus for explosion or gasoline E. T. McKaig
 Eraser and pencil sharpener. Combined C. Wetzel
 Excavating apparatus J. T. Richmond et al
 Exhibitor. Lace curtain S. F. Swan et al
 Explosive C. E. Bichel
 Explosive engine F. W. Hagar
 Eye shield A. A. Fairbanks
 Fabric feeding mechanism. Boarded C. Jackson
 Feed water heater H. J. Scheubner
 Feeder. Automatic stock or poultry H. N. Lyon
 Fence. Barb wire F. C. Mosier
 File case P. J. A. Van Deine
 File. Paper 2 pats. J. MacLachlan
 Filling machine T. J. Brough
 Filter dam E. V. R. Gardner
 Filter pulp packing machine K. Kiefer
 Filtering apparatus M. B. Lukens
 Filtering apparatus for separating solids from liquids K. Kiefer
 Fire escape E. M. Bras
 Fire escape J. Moltz
 Fire escape J. H. Lefelman
 Fire extinguisher J. E. Murray et al
 Fire extinguisher H. M. Gillett
 Fire lighter. Time J. D. Fulton
 Fire shield P. Wendling
 Firearm shoulder protector C. B. T. Benton
 Fireproofing wood G. Blenio
 Fish bait or lure W. Shakespeare, Jr.
 Fish hook C. Fredricks
 Fish line bob L. J. Holt
 Flanged pipe J. Wood, Jr.
 Flower holder P. Gommel
 Flue rattler R. M. Crosby
 Fluid compressors. Differential governor for G. Macloskie
 Folding chair 5 pats. C. Mettler
 Friction brake. Automatic A. Sedgwick et al
 Fulcrum machine stop motion W. H. Leavitt
 Furnace E. H. Carroll
 Furnace J. R. Cravath
 Furniture base. Glass M. I. Abrams
 Garbage burner F. E. McGarrin
 Garment. Infant's L. C. Sherick
 Gas burner. Incandescent L. R. Hopton
 Gas engine N. W. Travis
 Gas generating apparatus. Acetylene E. R. Cook
 Gas generating apparatus. Illuminating F. J. Foveaux
 Gas generator. Acetylene E. E. Miller
 Gas line safety cut off J. G. Armstrong
 Gas manufacturing apparatus P. Eyermann
 Gas producer J. A. Herrick
 Gases. Means for utilizing waste furnace C. L. Cole
 Gear O. L. Haney
 Glass plates in store fronts and show cases. Fastener for J. H. Curry
 Glassware making apparatus. Hollow E. E. Hoffman
 Governor. Pumping engine C. P. McMullen
 Grader. Road W. N. Williams
 Grain drier G. E. Morrison et al
 Grinding machine G. Gorton
 Grinding wheel R. Gardner
 Grinding wheel G. Hart
 Grindstones. Convertible tool support for C. H. Ferguson
 Hammer. Reciprocating A. E. Leech
 Harness hook I. E. Johnson
 Harrow N. H. Bloom
 Harrow tooth fastener G. E. Blaine
 Harrow. Wheeled disk J. H. Price
 Harvester. Cotton R. H. Purnell
 Hat frame machine D. D. Beatty
 Hay elevator connecting head D. E. Rowland et al
 Hay knife C. E. Lombard
 Hay loader C. F. Mitchell
 Hay press feeder. Automatic E. J. Richmond
 Heat derived from fuels into energy for utilization. Apparatus for converting B. M. Aslakson
 Heel. Cushion F. M. Sharpe
 Heels and foreparts. Slave for boot or shoe R. J. E. Metzenhain
 Hinge. Spring E. Bommer
 Hog catching and moving trap G. E. Ringer
 Hog ring W. F. Richards
 Horseshoe calk 2 pats. G. F. Hallman
 Horseshoe clip R. Whitaker
 Horseshoe clip M. Steed
 Horseshoe. Composition H. Bartley
 Horseshoe. Soft tread F. E. McEwen
 Hub attaching means J. W. Kovalek
 Hydraulic press O. Philipp
 Inducance coil W. C. Fish
 Induction apparatus. High frequency C. L. Spaulding et al
 Insect trap C. F. Smith
 Insulator F. M. Locke
 Insulator pin M. M. Wood
 Intrenching tool C. M. Ransom
 Irrigating head gate C. W. Seitz
 Jar closure J. C. Wandell
 Joining machine. Overlap H. Romunder
 Journal box. Antifriction D. Allen
 Knitting machine. Circular H. A. Houseman
 Knob. Carriage J. Hafer, Jr.
 Labeling machine H. L. Duncan
 Labeling machine. Double J. G. Hendrickson
 Labeling machine. Top J. G. Hendrickson
 Lace making machine F. A. Schmidt
 Lacing holding clasp. Shoe A. M. Henderson
 Ladder. Step W. M. Anderson
 Lamp C. C. Malton
 Lamp. Electric arc H. F. Smith
 Lamp. Electric arc W. C. Fish
 Lamp. Electric arc H. Lux
 Lamp fixture. Electric E. E. Hayward
 Lamp. Gas A. W. Nicholls
 Lampblack from acetylene. Making J. M. Morehead
 Lantern. Tubular. 2 pats. F. C. Cannon
 Lantern. Tubular W. T. & F. A. Iddings
 Latch. Gate N. Peterson
 Lifting jack J. C. Blevney
 Lifting jack E. Wustner
 Linotype machine J. R. Rogers
 Liquid elevating apparatus S. Hughes
 Liquid raising process G. R. Young et al
 Liquid separator. Centrifugal A. T. Salenius
 Liquid separator. Centrifugal A. L. Christenson
 Loading device W. H. Fern
 Loading or unloading machine J. McMyler
 Lock J. Greenberg
 Lock H. Barry
 Loom J. R. Fitton
 Loom bobbin receptacle. Automatic M. L. Stone
 Loom filling fork R. Riley
 Loom picker check S. H. Bevil
 Loom shuttle motion J. & A. Mann
 Loom warp thread holder H. Lee
 Lubricating device J. V. Clark
 Lubricator P. H. Knipper
 Lubricator drop feed E. D. Marvin
 Magnet. Polyphase D. L. Lindquist
 Mail bag fastening C. B. Stevens
 Mail catcher and receiver W. T. Long et al
 Mail collecting and distributing pouch E. M. Letts
 Mailing card. Coin J. Kettman
 Manure spreader J. S. Kemp
 Match box J. F. W. Kue
 Match composition H. Staler
 Match holder and striker E. A. Parker
 Match safe. Selfigniting S. A. Tescher
 Mattress B. F. Berryman
 Measure. Test B. Simpson
 Measuring instrument shunt. Electrical L. T. Robinson
 Mechanical movement A. Wahle
 Mechanical movement E. C. Northrup
 Medicated sweetmeat M. Bjornstad et al
 Metal working machine. Electromagnetic F. W. Jessop
 Milk cooler J. W. & C. W. Walkup
 Mine shaft safety device N. W. Dickerson
 Molding machine. 2 pats. W. J. Sterling
 Mortising machine A. W. Miller
 Motion transmitting mechanism. Rotary J. S. Kemp
 Motor C. Fero, Sr.
 Mower. Lawn J. I. Kunkle
 Mowers, reapers, &c. Cutting apparatus for J. Downing
 Mowing machine attachment A. K. Rarey
 Muffler G. S. Troost
 Music rack S. E. Buck et al
 Musical instruments. Pneumatic action for E. de Kleist
 Musical instruments. Tracker for mechanical R. W. Pain
 Nail puller H. L. Fish
 Neck stall A. J. Griffith
 Neckwear holder J. Weil
 Note sheet F. Taft
 Nozzle and spreader. Combined flushing J. H. Bormann
 Nursery stock puller M. P. Allen
 Nut lock W. B. Wolf
 Nut lock C. D. Campbell
 Nut shells. Machine for cutting J. H. Gruener
 Oil as fuel. Means for the utilization of crude J. O. Alwood
 Oil can G. Palm
 Oil cup J. H. McGinty et al
 Oil from water. Apparatus for separating W. J. McKnight
 Oil wick burner M. P. Allen
 Ornaments. Manufacturing cloth covered A. M. Holstein
 Oven. Baker's E. Kaiser
 Packing. Adjustable turbine A. R. Dodge
 Packing and shipping case H. A. Penrose
 Packing. Elastic fluid turbine O. Jungren
 Packing. Metallic A. Johnston
 Packing. Piston rod C. P. Fogh
 Paint and producing same R. Warnock
 Paint and producing same W. A. Hall
 Paper clip C. J. Brosnan
 Paper feeding machines. Sheet calipering device for T. C. Dexter et al
 Paper feeding mechanism C. A. Juergst
 Pasting mechanism P. A. Lawless
 Pen. Fountain J. H. Crowell
 Pen reservoir attachment H. Tartsch
 Pen. Extensible J. P. Kline
 Photographic plates, prints, or films. Apparatus for washing or otherwise treating J. B. S. MacLwaine
 Photographic shutter E. V. Piercy
 Photographs or pictures for producing animated effects. Apparatus for displaying series of J. Mason
 Pick J. Chevallard
 Picker check C. H. Buckley
 Picture frame hanger J. A. Long
 Pictures by means of catalysis. Reproducing W. Ostwald et al
 Pipe coupling W. P. Howell
 Pipe or casing puller S. W. Munn
 Planter. Corn E. E. Levig
 Planter. Corn W. S. Graham
 Planter dropping mechanism. Corn R. S. Kirkpatrick
 Plastic block machine A. Evenstad
 Plastic materials. Manufacturing decorative articles from J. Walter
 Plow gage B. W. Grice
 Pneumatic despatch apparatus carrier C. H. Burton
 Pocket device for garments. Detachable R. D. Yates
 Poison for rodents S. W. Allen
 Polyphase winding B. A. Behrend
 Pontoon for lifting loaded ships A. C. A. Holzapfel
 Powder can S. Rohrer
 Power transmitter J. M. Ough et al
 Printing apparatus L. M. Todd
 Propeller C. T. Freid
 Puff comb R. H. Damon
 Pump B. W. Rice
 Pump D. L. Shaffer
 Pump. Electric E. F. Porter
 Pump measuring device. Fluid W. J. Bussinger
 Pump. Motor air E. Cheshire
 Pump. Oil J. V. Clark et al
 Puzzle W. H. Nichols
 Puzzle G. J. Maringer
 Puzzle C. H. Sanders
 Pyrographic tool H. Holton
 Pyrotechnic device F. T. Beck
 Rack J. H. Varty
 Rail joint J. A. McKelvey
 Rail joint chair J. L. McGhee
 Rail protective device. Third J. Ryan et al
 Railway cattle guard gate W. D. Hudgings
 Railway construction. Slot switch tongue and slot switch box mechanism for conduit H. C. Stiff
 Railway crossing. Continuous rail A. Campbell
 Railway rail and chair. Combined C. A. Gilchrist
 Railway rail fastening R. G. Musgrove
 Railway rail joint C. A. Gilchrist
 Railway signaling circuit A. J. Wilson
 Railway switch H. Elliott
 Railway tie. Metallic H. W. Avery
 Railway track J. W. Porter
 Railway track structure G. M. Ervin
 Railway track structures. Plate fastening for G. M. Ervin
 Railway track switch. Electric G. H. Fretts
 Railway transfer. Street E. Riordan
 Railways. System of electrical distribution for electric J. H. Hallberg
 Razor guard E. P. Brewer
 Reflecting and directing light. Device for H. P. Roberts
 Refrigerator fastening N. Leighton
 Refrigerators, &c. Overflow alarm or indicator for N. Bosmann
 Rheostat. Automatic motor starting E. Schattner et al
 Riveting machine. 2 pats. J. W. Nelson
 Roadway surface composition J. E. Jones et al
 Roasting surface F. Klepetko
 Roof bracket T. H. Kingston
 Rotary engine L. G. Bartlett
 Rotary explosive engine A. N. Parnall et al
 Roundabout M. M. Taylor
 Rubber plants. Process of and apparatus for the separation and recovery of gum from F. Ephraim
 Sack closing grapple S. Loe
 Safe H. C. Brenner et al
 Sand washing and saving machine W. B. Martin
 Sanding or polishing machine F. Urban
 Sash. Reversible window A. Iske
 Sash. Self closing window C. D. Pruden
 Sawmill carriage J. O. Williar
 Scale attachment J. C. Dixon
 Scale. Beer P. F. Carmody
 Scale. Cream test W. H. Sargent
 Scale making machine P. F. Cohen
 Scale. Weighing W. H. Sargent
 Scale weight indicator. Weighing D. F. Curtin
 Scales. Relieving gear for railway J. P. Newell
 Scissors A. M. Minter
 Scraper I. B. Hammond
 Sea light. Intermittent G. Rocco
 Seed drill. Disk B. Armbruster
 Sewing machine A. Tetreault
 Sewing machine attachment for producing drapery cords C. A. Burns
 Shade and curtain bracket. Adjustable O. A. Lee
 Shaft. Flexible R. Shedenhelm
 Sharpening the knives of guillotine cutting machines. Apparatus for A. V. Brown
 Sheet feeding machine J. E. Smvta
 Sheet metal plate G. H. Stewart
 Sheller feeders. Means for adjusting C. E. Armstrong
 Shipping case H. A. Penrose
 Shovel W. S. Judd
 Shovels. Making W. S. Judd
 Sieve adjuster D. H. Houser
 Signaling system. Selective W. D. Watkins
 Silver emulsions. Producing J. Gaedick
 Siphon P. McGrath
 Skate P. W. Finkle
 Smelting furnace A. E. Manchester
 Smoking pipe G. B. N. Dow
 Snap hook J. B. Steele
 Snap hook H. H. Utery
 Snatch block G. Nettie
 Soap holder. Washboard L. L. Barton
 Soldering G. H. Stewart
 Soldering furnace burner E. T. Burgess
 Soldering machine. Can cap A. Cerruti
 Sole shoe W. B. Arnold
 Speculum C. F. Spangler
 Speed indicator. Rotary G. Saaler
 Spindle and bearing T. A. Boyd
 Stamp mill mortar M. P. Boss
 Staple setting implement F. Wiseman
 Starch. Making nitrated 2 pats. F. B. Holmes
 Steam gage. Bourdon W. I. Staaf
 Steel cutting self hardening J. Armstrong
 Steel hardening machine J. W. Faessler
 Steering boats. Means for J. E. Nicholson
 Sterilizing apparatus A. T. Pfeiff

Issued January 17, 1905.

MECHANICAL PATENTS.

Sterilizing organic substances.....C. C. L. G. Budde
 Stirrup.....J. B. Hayden
 Stock yard chute pen.....A. G. Leonard
 Stoolseat Piano.....F. P. Holtzman
 Structural block.....C. F. Linscott
 Sugar bearing materials. Treatment of.....C. Steffen
 Support. Adjustable.....O. C. White
 Sweeper, Floor.....W. A. Dunaway et al
 Tableau igniting machine.....S. M. Gorham
 Tag Umbrella.....H. Cain
 Telegraph and telephone transmission line.....E. F. Roerber
 Telegraph system.....H. Shoemaker
 Telephone bracket.....J. Barry
 Telephone receiver support.....F. F. Howe
 Telephone selecting system.....W. D. Watkins
 Telephone system. Party line.....W. W. Dean
 Telephone system. Selective.....P. J. Albrecht
 Telephone system. Selective party line.....A. J. Springborn
 Telephone trunk line apparatus.....W. O. Pennell
 Tent.....E. I. Rice
 Tent cottage.....C. Schram
 Thread separator.....E. C. Reiter
 Threshing machine.....G. Anderson
 Threshing machine band cutter and feeder.....J. Hammond
 Threshing machine beater.....J. Hovey
 Threshing machine feeding mechanism. Automatic.....E. P. Killinger
 Threshing machine separator attachment.....J. Schultz
 Ticket issuing and recording machine.....J. F. Ohmer et al
 Ticket or check holder.....W. T. Wallis
 Tile for floors, walls, &c. Combination.....J. T. Dickey et al
 Tiling. Imitation.....J. Singer
 Time recorder.....A. N. Palmer
 Tire coupling.....M. M. Artman
 Tire cover.....F. E. Bowers
 Tire. Pneumatic.....B. C. Rowell
 Tire. Pneumatic vehicle.....S. W. Fuller
 Tire. Vehicle.....C. Stein
 Tire. Vehicle.....2 pats.....J. Neary
 Tire. Wheel.....J. S. Cushing
 Tobacco stemming machine.....L. P. Whitaker
 Tongue support.....J. C. Oard
 Tool. Pneumatic.....2 pats.....H. G. Kotten
 Tool. Artificial.....R. E. Payne
 Torpedo.....W. E. Matthew
 Track construction. Concrete.....H. B. Nichols
 Trenching machine.....L. A. Desy
 Trolley bridge.....R. T. McCarroll
 Trolley device.....H. O. Reese et al
 Trolley for electric railways.....G. C. Heine
 Trolley retriever.....E. J. Jonas
 Trolley wire suspension device.....T. P. Chandler
 Trousers.....R. Rochmill
 Truck. Car.....J. C. Barber
 Truck. Hand.....E. J. Bryan
 Trunk.....C. H. Richards
 Tug. Shaft.....J. M. Peyton
 Tumbling drum.....W. R. Smith
 Turbine bucket support. Intermediate.....A. F. Macdonald
 Turbine. Elastic fluid.....2 pats.....C. G. Curtis
 Type writer.....H. Bates
 Type writer carriage.....B. T. Bruce
 Type writer ribbon holder.....S. P. Doane
 Type writer type bar bearing.....L. Myers
 Type writing machine.....A. T. Brown
 Type writing machine.....C. W. Howell
 Type writing machine.....O. C. Kayle
 Type writing machine.....E. B. Cram
 Universal joint.....F. E. Bocorselski
 Valve.....W. H. Kilbourn
 Valve. Air, water and vacuum.....O. C. Hatch
 Valve for air and water. Automatic drainage.....W. T. Donnelly
 Valve for air brakes. Automatic retaining and recharging.....C. B. Harrington
 Valve for intermediate stages of turbines.....W. L. R. Emmet et al
 Valve. Gravity.....J. F. McCanna
 Vehicle.....J. E. Armstrong
 Vehicle bow bending machine.....P. R. Brown
 Vehicle brake.....E. M. Winters
 Vehicle detector attachment.....H. Hencken
 Vehicle. Motor.....C. E. Foster
 Vehicle storm front.....H. D. Pursell
 Vehicle storm shield. Folding.....C. M. Harvey
 Vehicle wheel.....2 pats.....W. H. Schofield
 Vehicle wheel.....3 pats.....C. R. S. J. Halle
 Vehicle wheel spring fork.....C. O. Hedstrom
 Vending machine. Coin controlled.....W. H. Walter
 Ventilator.....S. H. Jacobson
 Voltage regulator.....O. M. Lacey
 Wagon.....H. Rodenhausen
 Wagon box.....C. B. W. Smith
 Wagon. Coasting.....2 pats.....H. E. Keyes
 Wagon. Dump.....M. Van Wageningen et al
 Wagon. Dumping.....J. F. Clark
 Warp float cutting machine.....G. H. Boynton
 Washboiler.....J. E. Fancett
 Washing machine.....C. Garver et al
 Washing machine.....E. J. Kilmurry
 Washer.....H. M. Waitt
 Watch protector.....R. A. Thratt
 Water cooler.....L. H. Brinkman
 Water elevating device.....G. K. Osborn
 Water elevating device.....V. P. Hammer
 Water head gate.....F. D. Giddings
 Water heater.....R. Hoffman
 Water heater automatic shut off.....R. Hoffman
 Water wheel.....T. R. Timby
 Wax emulsion and producing same.....H. H. Church
 Weaner. Calf.....C. W. Frick
 Weighing machine. Automatic.....G. J. Hicks
 Well drilling machine.....F. E. Simpkins
 Wheat cleaning and scouring machine.....M. A. Griffin
 Windmill wind wheel.....O. J. Ziegler
 Window or door alarm. Automatic.....J. Wagner
 Window strip.....R. R. Lee
 Wine cooling device.....F. P. Nobis
 Wrench.....M. C. Morrison
 Yarn drying apparatus.....A. H. Berry et al

DESIGNS.

Fringe.....2 pats.....J. C. Atkinson
 Trimming.....C. Seidel

Acid. Making dialkyl barbituric.....K. Stephan et al
 Adding machine signal. reissue.....F. H. Cottrill
 Advertising device.....J. Wertheimer
 Agricultural tool.....C. H. Strube
 Air brake system. reissue.....W. Williams
 Air cooling apparatus.....A. Siebert
 Amalgamator.....B. A. Langridge
 Ammunition hoist.....J. F. Metten
 Ammunition hoist safety catch.....J. F. Metten
 Amusement apparatus.....J. H. Maguire
 Anchoring stake.....F. M. Hurley
 Armature winding for electric motors.....B. G. Lamme
 Axle for railway or other vehicles.....A. C. Massey
 Baling press.....T. A. Kilman
 Ball spouter and register. Combined.....M. G. Wright
 Bat. Base ball.....J. M. Truesdell
 Bearing. Antifriction.....D. Conway et al
 Bed.....M. L. Libotte
 Bed bottom.....F. W. Hoefer
 Bed. Folding.....L. F. Gehr
 Bed pans. Supporting frame for use with slipper.....E. A. Conyers
 Bedspring joint.....R. J. Ellsworth
 Beet thinning and cultivating device.....G. H. Smith
 Bicycle tandem seat.....C. O. Hedstrom
 Billiard cloth.....2 pats.....V. B. Hubbell
 Blast hole loader.....W. T. Wright
 Blind fastener. Window.....T. Euphiat
 Blind slat adjuster.....J. Hatfield
 Boat and means for propelling same.....H. Stasny
 Boat binnacle. Submarine.....J. S. Negus et al
 Boiler and furnace. Combined.....R. Bonson
 Boiler patch plate.....W. Cross
 Boiler toe tie.....G. Y. Bonus
 Book. Manifold sales.....W. M. Kubon
 Bottle cleaning machine.....L. C. Sears
 Bottle. Non refillable.....W. Plush
 Bottle. Non refillable.....J. Guttman
 Bottle smasher.....J. H. Gernhardt
 Bottle washing machine.....E. E. Hanna
 Bottle washing machine.....F. N. Young
 Box lid. Adjustable.....C. F. Ramsay
 Box lid fastener.....P. D. Skahan
 Brake block.....F. W. Sargent
 Brake mechanism for six wheeled trucks.....G. L. Fowler
 Brake shoe.....H. Jones
 Brake shoe.....A. L. Streeter
 Brazing compound.....F. A. Reynolds
 Bread and roll making mold.....C. Yre
 Brick kiln. Downdraft.....T. I. Brett
 Brick, peat, or like press.....H. Horn
 Bricks or blocks. Manufacture of perforated.....E. Stoffler
 Bridge. Bascule.....J. A. Joyce
 Briquetting machine.....H. E. Marsh
 Bronze blowing tool.....F. Egert
 Brush. Rotary.....W. H. Heffernan
 Buggy top. Knockdown.....O. M. Thomas
 Burial casket.....J. Anderson et al
 Butter making machine. Centrifugal.....L. Johnson
 Cableway. Aerial.....J. S. Rees
 Caboose light.....R. L. Massey
 Cam. Variable.....B. Salzer et al
 Camera. Panoramic.....2 pats.....D. A. Reavill
 Camera. Panoramic.....F. W. Brehm
 Camera revolving apparatus.....W. J. Johnston
 Camera. Roll holding.....P. T. Hahn
 Can body forming machine.....C. J. Weinman
 Can opener.....T. T. Merriman
 Can opener.....M. H. Johnston
 Capstan head for trimming wheels.....G. H. Catt
 Car bumper.....G. W. Hixson et al
 Car coupling.....E. S. Jones
 Car coupling.....W. S. Schroeder et al
 Car coupling.....E. R. Trammell
 Car coupling.....J. A. Hinson
 Car door. Grain.....E. D. Hammond
 Car door hasp.....H. H. Duvell
 Car. Dump.....J. S. Doe et al
 Car. Dump.....G. I. King et al
 Car part.....E. I. Dodds
 Car step.....J. M. Tozer
 Car stopping device for inclined railways.....S. E. Jackman
 Car underframe.....W. P. Bettendorf
 Carburetor.....J. M. Kelley
 Carpenter's tool.....E. L. McDaniel
 Carpet fastener. Stair.....G. B. Shaw
 Carriages. Combined canopy and parasol cover for baby.....L. A. Hassemer et al
 Cattle guard.....C. I. Kelly
 Centrifugal separator.....C. J. Pihl
 Chimney.....G. Palladino
 Cigar cap.....A. Woods
 Clamping device.....A. J. Weed
 Clenching nail or tack.....P. W. Pratt
 Clothes pounder.....H. F. Sullivan
 Clutch.....G. Burr
 Clutch.....J. C. Crabb
 Clutch. Friction.....J. W. Lambert
 Clutch. Friction.....J. F. Duryea
 Clutch. Friction.....R. N. Phillips
 Clutch mechanism.....W. H. Corbett
 Clutch mechanism.....H. C. Hansen
 Coal handling machine.....S. B. Fleming
 Cock. Filtering stop.....E. B. Freeman
 Coin assorter.....J. J. Farrell
 Coke oven charging device.....J. B. Ladd
 Collar stretcher.....J. K. P. Pine
 Column. Concrete.....S. B. Burkholder et al
 Column mold. Concrete.....S. B. Burkholder et al
 Column. Wooden.....R. Hegener
 Concentrator table.....F. E. Forster
 Concrete works. Apparatus for building submerged.....F. J. Gilman
 Condenser system.....L. R. Alberger
 Conveyor. Belt.....L. K. Vaughan
 Corner bead or strip.....W. G. Hurlbert
 Corner strip or bead for plastered walls.....J. A. Hunt
 Cornice or strip. Ventilating.....T. H. Wilcox
 Cotton chopper.....T. J. Lowry
 Cotton picking machine.....J. C. Groves
 Counting sheets, notes, &c. Machine for.....J. D. Bishop
 Coupling.....2 pats.....J. & J. O. Timms
 Crate. Folding.....A. A. Bakke
 Crystallization.....V. Schutze
 Cultivator.....2 pats.....W. McCloskey

Cultivator.....F. Kress
 Cultivator. Cotton and corn.....T. W. Boyle
 Culvert.....D. C. Boyd
 Current motor.....G. D. Foster
 Current motor. Single phase alternating.....B. G. Lamme
 Current system of distribution. Single phase alternating.....P. M. Lincoln
 Curtain pole.....C. G. Foster
 Current motor. Single phase alternating.....B. G. Lamme
 Current system of distribution. Single phase alternating.....P. M. Lincoln
 Curtain pole.....C. G. Foster
 Cutting mechanism.....J. R. Van Winkle
 Dasher.....M. W. Beemer
 Dental instrument. 2 pats.....A. A. Wilcox et al
 Dental instrument holder. Electric.....M. N. Callender
 Detergent. Composition of matter used as a.....W. Forger
 Dikes. Making staggered.....G. Cadenasso
 Display device.....S. J. Sherer
 Display device.....S. Mewman et al
 Dividers. Bisecting.....P. Jelsma
 Door. Flush hinge.....F. W. von Oven
 Door hanger. Sliding.....G. Vogt et al
 Door mat.....T. J. McCarthy
 Doors. Bracket for mounting sliding.....J. H. Fletcher
 Draft equalizer.....J. Yost
 Drain conduit.....C. Jaekel
 Dredging apparatus.....J. Edwards et al
 Dress shield.....V. Guinzburg
 Driving bit.....P. A. Murdock
 Dust guard.....E. Denegre
 Dye vat compression top.....J. A. Willard
 Dyeing apparatus.....J. A. Willard
 Dyeing machine.....J. A. Willard
 Dyeing, &c., vat.....J. A. Willard et al
 Earth handling machine.....W. A. Heuser et al
 Electric circuit closer.....J. K. Norstrom et al
 Electric controlling apparatus.....J. D. Ihlder
 Electric light bulb. Incandescent.....M. C. Burt
 Electric lighting system.....G. E. Palmer
 Electric machine. Dynamo.....B. A. Behrend et al
 Electric motor.....B. G. Lamme
 Electric motor controller.....T. S. Perkins
 Electric motor starting and braking device combined.....A. Hultqvist
 Electrical controlling apparatus.....F. C. Newell
 Elevator safety device.....J. Kaye
 End gate fastener. Vehicle.....F. O. Hardy
 End gate or side board fastening for wagons.....C. C. Schlegle
 Exhibiting parts of bedsteads or the like. Device for.....R. Marx
 Explosive engine.....R. G. V. Mytton
 Extensible table.....J. A. F. Wolf
 Fence and line stop.....J. L. Campbell
 Fence post.....W. F. Kerlin
 Fence. Wire.....A. E. & C. O. Porter
 File case drawer.....G. A. Hollocher
 Filter.....F. B. Shelden
 Filter mass washer.....B. F. Schirmer
 Fire box.....G. W. Butcher
 Fire escape.....T. Withey
 Fire shield. Automatic.....C. A. Teal
 Fire extinguishing apparatus.....C. A. Teal
 Fish net float.....J. Koening
 Fish net float.....J. Koening et al
 Fly wheel brake.....A. G. Hubbard
 Folding box.....J. R. Medley
 Fuel. Composition.....A. Schmidt
 Furnace ash removing device.....H. A. Poppenhusen
 Furnace door operating device.....J. O. Lagerquist
 Furnace for burning ore briquets.....G. Grondal
 Furnace for roasting ores, &c.....W. W. Tobey
 Furniture. Convertible.....G. P. Steinbach
 Games of skill. Coin released apparatus for playing.....H. Wolfe
 Gas cut off. Thermal.....G. H. Bible
 Gas fixer locking device.....P. Maggio
 Gas generator. Acetylene.....F. L. H. Sims
 Gas heater and lamp. Combined.....G. F. Bryan
 Gas producer.....W. J. Crossley
 Gas producing apparatus.....R. S. Craig
 Gearing.....G. Nelson
 Glass. Flattening sheet.....J. Craig et al
 Glove.....D. Shwed
 Governor. Engine.....J. E. Kimble
 Grain binder cord holder.....F. A. Ryther
 Grain elevator.....J. Keegan
 Graphite from wollastonite. Separating.....S. R. & S. V. Krom
 Grinding mill.....J. H. Hubbell
 Gun.....S. N. McClean
 Haematokrit.....H. E. Wetherill
 Hair drier.....D. J. Buckley
 Handle.....W. D. Keefe
 Harness.....R. J. Stirling
 Harness attachment.....S. C. Anderson
 Harvester binder. Grain.....W. N. Whitely
 Hay sling.....C. R. Schultz
 Heating composition.....E. Kafka
 Hinge.....J. E. Sloan
 Hinge.....T. I. Duffy
 Hoisting apparatus.....A. A. Hopkins
 Hoisting apparatus.....J. A. Willard
 Horse detach.....S. C. Anderson
 Horse detach.....P. S. Truxal
 Horseshoe.....M. Deater
 Horseshoe.....C. F. M. Fish
 Hub Wheel.....C. C. Packard
 Igniter. Electric.....J. W. Packard
 Illuminating body.....M. Korff
 Inhaler.....T. Heryng
 Insect destroyer.....J. A. Nelson
 Insulator. Third rail.....P. Winsor
 Iron pyrites briquet and making same.....U. Wedge
 Ironing table.....W. H. H. Marcum
 Jack arm.....S. L. G. Knox
 Jacquard heald and harness.....E. Oberholzer
 Jardinere.....F. C. Mosier
 Keyboard. Instrumental.....S. W. Thackeray
 Knitting machine. Straight.....H. L. Weigert
 Lace. Shoe.....G. H. Nicholls
 Ladle mechanism.....J. C. McCoy
 Lamp attachment. Miner's.....A. L. Hileman
 Lamp. Electric.....E. R. Roberts
 Latch. Gate.....J. Crawford
 Lathe. Pipe threading and cutting.....W. Albee
 Lathe. Turning.....W. H. Berkheiser
 Leather stretching and drying apparatus.....P. H. Grimm
 Letter rack.....A. J. Phillips et al
 Lifting jack.....A. Schatz
 Lithographing and printing presses. Register gage for.....A. W. Kling

Locking device for the doors of lockers, &c.....G. Holden
 Locomotive boiler.....N. L. Warren
 Locomotive water heater.....W. H. Richmond
 Loom. Filling replenishing.....F. G. & J. H. Cobb
 Loom shuttle. Self threading.....2 pats.....C. E. Sackett
 Loom shuttles or other wooden wearing surfaces. Treating.....O. E. Holdridge
 Lubricant distributor and automatic cut off. Combined.....W. H. Youtsey
 Match box delivery holder.....J. W. Selander
 Match box holder.....O. C. Luther
 Match boxing machine.....W. H. Parker
 Match machine.....W. H. Parker
 Matches. Making.....W. H. Parker
 Measuring apparatus for spherical trigonometry.....G. Pellehn
 Measuring machine. Leather.....F. J. Perkins
 Meat. Apparatus for expressing juice from.....J. C. Eavenson
 Mechanical movement.....W. S. Huson
 Medallion.....G. B. Keplinger
 Medical vaporizer.....J. E. Van Ness
 Metal expanding machine.....C. J. W. Hayes
 Metal leaching process.....T. B. Joseph
 Metals. Electrochemical separation of.....W. M. Johnson
 Mitt. Catcher's.....B. T. Rogers
 Motor for washing machines, &c.....C. Kampmann
 Music leaf turner.....F. B. McNamara
 Music roll for mechanical musical instruments.....H. B. Tremaine
 Music sheet guiding and tension means.....G. B. Kelly
 Musical instrument players. Means for controlling the tension in wind ways of mechanical.....J. H. Dickinson
 Mustache guard.....T. J. Hagen
 Negatives. Prepared plate for making graphic.....J. Little
 Nut and bolt lock.....A. Fratanuono
 Nut lock. Skein.....W. H. Weber
 Oil can.....J. Bardsley et al
 Oil from waste. Apparatus for extracting.....F. Hachmann et al
 Oil praline. Castor.....L. Pink
 Oxidizing methyl groups in aromatic hydrocarbons.....M. Bazlen et al
 Packing. Piston.....J. A. Key
 Paint. Oil.....M. Herisson
 Painter's bucket bracket.....J. H. Laney
 Paper fastener.....J. Westenhoff
 Paper tray.....F. B. Davidson
 Pedal. Folding.....J. Sampere et al
 Pen attachment.....M. E. McMaster
 Pen Fountain.....A. Eberstein
 Pencil sharpener and holder. Combined.....C. W. Gaston
 Petroleum burner. Incandescent.....P. Lucas
 Photographic film.....P. T. Hahn
 Photographic light value scale.....R. E. Henning
 Photographic printing and making same. Negative plate for.....W. J. Little
 Piano.....E. S. Votey
 Piano action bridge strap. Upright.....J. Ammon
 Piano attachment. Self playing.....W. W. Waterman
 Picker check strap.....T. Mooney
 Picture frame, etc., support.....J. Mohlberg
 Pin lock.....G. B. Keplinger
 Pipe antireeving device. Water.....F. J. Wood
 Pipe bracket.....G. P. Gross
 Pipe grip.....E. G. Huntington
 Placket closure.....R. B. Renwood
 Plane.....A. J. Reynolds
 Planter. Corn.....S. E. Jones
 Planter dropping mechanism. Corn.....R. S. Kirkpatrick
 Plastic compound.....T. J. Spitzer
 Plastic post core.....J. F. Martin
 Power press.....R. E. Boschert
 Pressure gage.....M. Gehre
 Printing press beds or the like. Mechanism for operating.....S. Halvorsen
 Printing presses. Composition for cleaning plate.....T. R. Demery et al
 Pump.....3 pats.....G. B. Petsche
 Rack cutting apparatus.....L. T. Weiss
 Railway brake mechanism. Inclined.....S. E. Jackman
 Railway cable tramway support and shield. Aerial.....C. Messick, Jr
 Railway. Inclined.....S. E. Jackman
 Railway rail stay.....H. H. Sponenborg
 Railway signal.....T. H. Hill
 Railway signal. Electric.....E. W. McGuire
 Railway signaling device.....J. O. Garrett
 Railway switch. Automatic.....G. Carrier
 Railway the hewing machine.....J. C. Wilson
 Railway track and car.....S. E. Jackman
 Razor frame. Safety.....A. W. Schenber
 Razor or razor guard. Safety.....A. W. Schenber
 Razor. Safety.....J. E. Baker
 Reclining chair. Knockdown adjustable.....W. A. Wylie
 Refrigerating apparatus. Absorption.....H. Geppert
 Register.....J. O. Morris
 Relay. Circuit making and breaking.....F. Conrad
 Roasting furnace.....A. R. Meyer
 Roller screen.....D. W. Wadsworth
 Rope or cable clamp. reissue.....J. B. Braden
 Rotary drill.....A. Francis
 Rotary engine.....S. Webster
 Safety pin.....E. Shepard
 Safety pin.....R. P. Brown
 Salt or pepper dredge.....A. H. Jones
 Sand. Treating molding.....F. E. Johnson
 Sash holder.....F. B. Townsend
 Sausage stuffing machine.....H. J. Tiemann et al
 Saw. Endless chain.....S. J. Bens
 Saw filing machine.....M. P. Schell
 Saw for cutting iron or steel. Band.....A. E. Muirhead
 Saw mill. Band.....G. M. Hinkley
 Saw set.....F. Lentz
 Scarf pin guard.....C. Nobs, Jr
 Scraper spring latch. Wheeled.....R. Russell
 Screening mechanism.....R. H. Thorpe
 Seal. Bottle.....reissue.....E. D. Schmitt
 Sectional boiler.....W. M. Mackay
 Sewing machine embroidering attachment.....M. E. Tynes
 Sewing machine. Rotary hook.....C. E. Finkle
 Sewing machine tucker attachment.....A. P. Day
 Shaft hanger.....W. S. Rogers
 Sheave block.....H. Gilley

Shelving..... J. P. Taylor
Ships. Vessel for bunkering and loading..... E. T. Williams et al
Shirt and cravat. Combined..... G. W. Sheckells
Shoe, &c., fastener..... C. D. Brent
Show case..... A. Jaeger
Shuttle worker..... J. J. Bell et al
Sieve, Adjustable..... C. Closs
Sign, Illuminated..... J. Clegg
Signal device, Track..... A. E. Freni et al
Siphon filling device..... H. C. Niemeyer
Sled runner, Bob..... J. H. Anderson
Snap hook..... G. A. Huff
Soldering iron and heater, Combined..... M. J. Stark
Sound deadening device..... W. E. Forshee
Spark arrester..... J. J. Sullivan
Spectacle spring clip..... C. R. Baker
Spinning machine..... J. Newsome
Spool holder..... E. B. Case
Stall floor..... A. J. & M. B. Lansing
Staple, Double pointed..... O. Arendt
Staple, Four pointed..... O. Arendt
Stave compressing machine, Barrel & Holmes
Steam boiler..... W. P. & W. G. Allen
Steam boiler..... W. P. & W. G. Allen
Steam boiler..... H. Barrus
Steam pressure or temperature, Apparatus for indicating saturated..... R. T. Glascodeine
Stone molding apparatus, Artificial..... A. Gaspari
Storage battery..... J. Meizer
Stove attachment..... S. H. Rodeheaver
Stove, Electric..... E. H. Richardson
Strainer for sinks, bath tubs, &c..... S. E. Horner
Straw bundle rope former..... C. B. Wanamaker et al
Straw bundle tie..... C. B. Wanamaker et al
Stretchers, Collapsible..... K. Faehler
Switch mechanism..... J. W. Eskholme
Switch operating device..... W. K. Smith
Tabulating and writing machine, Combined..... D. E. Felt
Tabulating machine..... 2 pats..... D. E. Felt
Talking machine attachment..... F. C. Hassett
Tanning machine turn table..... L. P. Valique
Tanning apparatus..... E. G. Steinke
Tapping apparatus..... F. Pentlake
Telephone system..... A. Ekstrom
Tenerife disk..... M. M. Lowe
Tie bar..... R. J. Mareburger
Tile press..... M. Mueller
Tinning machine..... C. C. Roberts
Tire cover, Detachable..... F. Mesinger
Tire fastener..... E. L. Thomas
Tire fastener, Wheel..... A. von Lude
Tire, Pneumatic..... W. Struck
Tire, Pneumatic..... W. W. Waiter
Tire, Rubber..... A. S. Krotz
Tire, Rubber..... 2 pats..... C. H. Bryan
Tire, Vehicle..... G. D. Munsing
Tires, Air tube for pneumatic..... J. R. Taylor
Tool, Pneumatic..... W. H. Keller
Tool setting device, Machine..... R. Strehlau
Top, Spinning..... H. Konerman
Towel and soap delivering apparatus..... W. Garlick et al
Toy gun..... A. von Datzynski
Traction device, Electromagnetic..... G. W. Thompson
Transits, &c., Location attachment for..... F. Whitney
Transportation system..... E. W. Curriess
Trolley..... G. H. Tuttle
Trolley wheel sheath..... S. Jurado
Trolling float..... M. Flegle
Trousers hanger..... C. J. Dahlgren
Truck..... G. E. Barth
Trunk..... A. Flores
Type writer..... J. W. Paul
Type writer printing mechanism..... J. B. Hammond
Umbrella tip retainer..... P. Kahrenberg
Valve mechanism..... J. Moehu
Valve mechanism float..... G. W. Nistle
Valve, Safety..... J. W. Duncan
Valve, Steam actuated..... O. Grassler
Vehicle..... F. G. Davis
Vehicle brake block..... M. Potter
Vehicle, Dumping..... J. H. Richardson
Vehicle for transporting light loads at high speed..... D. Monnier
Vehicle frame, Motor or other..... J. de Montgolfier
Vehicle wheel..... G. D. Munsing
Vending device..... C. A. Brewer et al
Ventilator lifter..... C. A. Black, Jr
Vessel air apparatus..... H. Nelson
Wagon body attachment..... W. H. Hendricks
Wagon box, Adjustable..... L. Marlay
Wagon, Night lunch..... A. H. Closson
Wagon starter..... J. Austin
Wardrobe..... E. P. Whitman
Washboard..... C. R. Chapman et al
Watchcase..... H. P. Hardy
Watch regulator..... C. E. De Long
Water elevator..... J. A. Goodner
Water elevator..... T. H. McDonald
Water tube boiler..... K. Hellner
Waterproofing and making same..... H. Paschke
Weighing machine..... S. D. Hedge
Wells, Cleansing oil..... W. E. Gardner
Wheel rim, Vehicle..... G. D. Munsing
Wheel..... C. F. Metten
Window..... M. J. Carter
Wire tying die, Intersecting..... D. H. Hayes
Wood grinding apparatus..... E. F. Millard
Wool wash waters, Apparatus for treating..... G. E. Behrens et al
Wrench..... L. Peloquin, Jr
Wrench..... S. C. Anderson
Wrench..... H. H. Riggin
Zinc or other sulfides from their ores, Apparatus for recovering..... J. H. Gillies

DESIGNS.

Finger ring..... I. Rosenbaum
Stove..... W. J. Boyle
Tobacco, cigar, and cigarette receptacle..... A. Q. Walsh

Issued January 24, 1905.

MECHANICAL PATENTS.

Adding and subtracting machine..... M. E. Anderson
Adjustable table..... L. Stengel

Advertising device..... M. L. Hinchman
Air and gas supply apparatus..... J. E. Trucks
Air brake mechanism..... H. N. Ransom
Amalgamator..... J. B. Rossman
Animal trap..... A. A. & E. H. Hoyt
Annulus..... L. N. D. Williams
Article of manufacture..... A. M. De Solla
Automobile..... A. & A. Holmes
Axles, Revolving cylindrical sleeve for rail-way car..... M. Maikula et al
Balance ball..... W. H. Sargent
Baling press..... 2 pats..... J. S. Tuttle
Batteries, Charging storage..... J. L. Hall
Batteries, &c., Mercury feeder for stamper..... N. P. Carver
Bed, Folding..... E. Mackenzie
Belt shifter, Automatic..... M. G. Gays
Binder, Loose leaf..... W. P. Pitt
Bladder, Temporary..... S. A. M. Vlay
Binder tension device..... F. Sporer
Blower, Dust..... F. B. Scher
Blowing engine or compressor..... G. B. Pische
Boat, Surf..... B. J. Such
Boilers, &c., Indicator for domestic..... A. F. Bird-bray
Book, Credit..... I. G. Kight
Boot or shoe non-slipping attachment..... I. McGrath
Bottle..... W. Gardner
Bottle, Hot water..... B. J. Craggy
Bottle, Non-refillable..... H. Tatum
Bottle, Non-refillable..... C. S. Orr
Bottle, Non-refillable..... R. A. Schwab
Brake rigging..... J. M. Davies, Jr
Brake rigging or six wheeled trucks..... F. P. Livingston
Bread mixing machine indicator..... C. Holowell
Brush manufacturing machine..... E. S. Root
Brush material in brush backs, Machine for placing..... C. W. Smith
Buckle..... E. N. Humphrey
Buckle, Harness..... J. I. Stamper
Bung extractor..... T. Pendergast
Button fastener..... S. B. Lane
Button strip for garments..... E. G. Tebbutt
Buttons, Machine for forming blanks for tufting..... F. Marggraff
Calculating machine..... E. Ocumpaugh, Jr
Calendar, Perpetual..... H. Seelman
Camera..... J. N. Anderson
Can filling machine..... E. M. Lockwood, Jr
Candelabrum, Folding..... T. McGovern
Car and body bolster therefor, Railway..... S. Otis
Car brake, Mining..... C. F. Kelso
Car construction..... H. F. Vogel
Car door operating mechanism..... A. Stucki
Car, Drop bottom dump..... S. Otis
Car, Dump..... 2 pats..... H. S. Hart et al
Car, Dump..... 4 pats..... S. Otis
Car, Passenger..... C. B. & F. White
Car, Railway..... 2 pats..... S. Otis
Car side..... F. S. Ingoldsbey
Car wheel..... I. H. Sampers
Car wheel..... 2 pats..... R. P. Tomassek et al
Carbonating apparatus, Liquid..... S. S. Ferry
Carburetor..... J. F. Lawrence
Carburetor for hydrocarbon engines..... E. Huber
Carpets, rugs, or similar articles, Machine for cleaning..... Z. B. & S. G. Mead
Carriage top prop..... P. Stombs
Carton, Candy..... H. B. Jessup
Casket pedestal, Folding..... H. L. Rawson
Casket socket plate..... E. R. Sargent
Catamenial sack..... M. E. Coleman et al
Ceiling plate..... C. H. Eastman
Cement coated nail..... J. M. Dix
Chair..... N. Axelrad
Chair tip..... P. W. Pratt
Check device, Manifold..... W. S. Brewer
Churn..... B. A. We'ds
Churn operating mechanism..... J. Walber
Chute, Trimming..... P. O. Olson
Clamping wrench..... L. Schlegle
Collar folder..... F. W. Collier
Collar shaping machine, Fold..... L. R. Heim et al
Commode..... M. T. White
Concrete articles, Manufacture of..... J. L. Shough et al
Concrete mixer..... R. Z. Snell
Condenser..... H. A. Steber
Confectionery machine..... H. Lerche
Conveyer belt..... C. P. Payne
Cooke and bake oven, Combination steam..... A. Anschutz et al
Corn popping attachment..... E. W. Ripley
Cot, Convertible..... W. A. Roberson
Cotton cleaner..... G. & F. Masterman
Counting device..... M. W. Saxon
Coupon instrument..... L. T. Davidson
Cover securing device, Detachable..... C. F. Green
Coverings, Apparatus for making molded..... J. W. Wallace
Crimping machine..... P. Hinkel
Cultivator..... S. E. Bailor
Cultivator attachment..... J. W. Joyce
Cultivator attachment..... W. Hoffert
Cultivator attachment..... F. M. E. A. & W. L. Loxley
Curtain pole and shade holder, Combined..... D. Haigh
Dental automatic plugger..... A. W. Wimmer
Dentometer..... N. Shockey
Diffusion apparatus..... H. Schwarz
Distiller and cooker, Combined..... J. D. Wilson
Distilling apparatus..... H. A. Steber
Door, Revolving..... H. J. Numrich
Draft equalizer..... C. H. Taylor
Draft evener..... M. H. Patnode
Drier..... J. M. Rumbaugh
Drill..... S. J. Kabaker
Drilling machine..... A. W. Whiteford
Dust bins, &c., into carts or other receptacles, Means for emptying..... J. D. Weissfloh
Dye, Sensitizing..... R. Berendes
Dyeing silk..... J. Weidmann
Dynamo for train lighting..... J. F. McElroy
Ear trumpet..... A. W. Aylsworth
Edger press rolls, Adjustment for..... W. H. Trout
Electric circuits, Thermal cut off for..... T. Varney
Electric meter..... 2 pats..... J. J. Wood
Electric motor control..... G. W. Remington
Electric motor controller, Alternating current..... R. P. Jackson
Electric motor starting switch..... J. B. Wiard
Electric switch, Automatic..... E. R. Dull

Electromagnetic waves or other feeble signal impulses, Receiving..... F. K. Vreeland
Electropneumatic control system..... E. R. Carichoff
Elevator door, Sidewalk..... C. G. Janson
Engine for operating clam shell buckets..... J. G. Delaney
Engine regulating mechanism..... C. Jacobson
Engines, Electric igniting system for vapor..... A. E. Doman
Evaporating apparatus..... F. Meyer
Evener, Three horse..... S. A. Massey
Excavating machine..... L. Rosebush
Explosive engine..... J. G. Callan
Explosive motor..... A. Radovanovic
Extension table..... E. T. & F. Westerfield
Extinguisher..... F. E. Girard
Fabric cleaning machine, Pneumatic..... Z. B. & S. G. Mead
Face shields for riders of motor vehicles..... C. H. Whalley et al
Facial robe or mask..... D. H. Palmer
Fan..... M. A. Skall
Fan mechanism..... S. R. Bachtel
Farm gate..... T. C. Sisk
Fastening, Separable..... D. L. Watson, Jr
Faucet, Self closing..... W. Angehr
Feeder, Boiler..... F. M. Walker
Fence post..... A. & C. A. Church
Fence post..... J. L. Dillon
Fence structure, Wire..... H. R. Lamb
Fertilizer distributor..... J. J. Collins
Filter..... C. R. Harris
Filter, Porous earthenware..... W. Martens
Fire escape..... G. E. Donnell
Fire escape..... H. A. Hansen et al
Fire extinguisher..... H. W. Mix
Fire extinguisher seal perforator..... A. F. Prahm
Fire extinguisher sprinkler head, Automatic..... A. D. Linn et al
Fireproof building construction..... J. Babiczky
Fireproof floor and ceiling..... J. F. Klein
Fireproof stairway..... J. Piccardi
Flood gate..... M. Carstanien
Flour bin..... R. Clarke
Flue..... C. M. Hoerogott et al
Flue cleaner..... C. F. Ohsner
Fluid comminuting and mixing device..... J. W. Hill
Fluid pressure motor..... C. O. Deutschmann
Folder..... C. H. Farmer
Furrow opener bearing, Disk..... F. R. Packham
Game apparatus..... W. H. Clagett
Garment fastener..... F. E. Miller
Garment hanger..... J. P. B. Peto
Garment supporter..... W. J. Heim et al
Gas burner, Incandescent..... A. A. Pratt
Gas engine..... A. E. Doman
Gas engine..... S. F. & C. E. Burlingame
Gas meter valve..... E. A. Reeves
Gas regulator..... C. Jacobson
Gate actuating apparatus..... C. Mercer
Glass blowing and drawing tool..... A. Dewerpe
Glass glazing apparatus..... T. Coleman, Jr
Glass press shaping plunger..... G. E. O'Hearn
Go-cart..... F. H. Richards
Golfing club..... J. R. Brown
Grain binder..... J. W. Downey
Grain grader..... G. H. Rich
Grate..... F. Y. Jensen
Greenhouse tile bench..... W. G. Bate
Grinding mill..... W. Rief
Grinding mill attachment..... H. Kenyon
Hammer, Foot power..... E. Erickson
Harvesters, Tongue support and side draft check for grain or grass..... C. F. Ortmann
Hat press head..... F. H. Hawley
Hay or grain loader..... S. E. Spaulding
Hay press weighing attachment..... H. Driskel
Head protector..... F. P. Mogridge
Headlight, Locomotive..... A. N. Werts
Helmet..... J. J. Curtis
Hoisting device reverse mechanism..... A. M. Smith
Horn and lamp, Combined..... E. Bert
Horsehoe..... J. Mattas
Horsehoe calk..... F. Singer
Horticultural apparatus..... J. Umbehend
Hose supporter..... F. W. Smith, Jr
Hose supporter and corset steel lock, Combined..... M. H. Gerstle
Hot air and water heater, Combined..... A. B. Vanderhoof
Hydraulic press..... L. von Susskind
Hygrometer attachment..... J. H. Gerrier
Ice box water alarm..... A. K. Hellmann
Incubator..... W. H. Phillips
Incubator tray and turner..... P. D. Somerville
Indigo, Purifying..... R. Hutzler
Insect destroyer..... A. M. Starr
Insulation of coils, Apparatus for testing..... E. W. Kellogg
Internal combustion engine..... P. F. Maccallum
Jewel setting tool..... J. M. Steele
Journal box..... C. W. H. Blood
Journal box brasses, Means for adjusting..... W. Rioux
Lamp, Incandescent..... H. E. Meyers
Lamp shade..... S. A. Duncan
Lamp socket, Incandescent..... H. E. Meyers
Lamps, Contact for electric hand..... G. L. Patterson
Lathes, Gearing for head stocks for..... N. D. Chard
Leg, Artificial..... G. A. Erickson
Lifting and dropping mechanism..... E. D. Duchow
Lifting jack, Vehicle..... E. J. Rubottom et al
Link, Resilient..... K. F. Elers
Liquid applying device..... W. Wiggins
Locomotive sander..... G. W. Frazier
Loom having retractile reeds..... P. C. Stadler
Loom shuttle tension device..... E. F. Crawshaw
Lubricating attachment..... F. McCarthy
Lubrication..... C. Comstock
Lubaicator..... C. Comstock
Magnetic separator for ores, &c..... J. T. Dawes
Mail bag crane..... F. S. See
Mail box..... M. B. & H. S. Mills
Mail box signal, Free delivery..... E. B. Kitchen
Mail pouch fastener..... A. L. Davison
Matte spout, Sectional water tube..... A. R. Brink
Measuring instrument, Combination..... R. L. McCartney
Measuring the energy of alternating current circuits, Means for..... M. Walker
Metal structure and anchorage therefor..... J. L. Holmes

Measure, Powder..... A. W. Peterson et al
Metals from their ores, Separating..... J. M. A. Gerard
Milk cooler..... O. C. Fortney
Mining bucket dumping apparatus..... W. R. Wilcox
Mitering implement..... G. L. Holt
Molding machine..... C. Breischwerth
Mop..... E. H. Fenton
Mop wringer..... H. C. White
Morphin compound and making same..... R. Pschorr
Moth and bug proof receptacle for clothing..... W. D. Ballou
Motor controller, Alternating current..... R. P. Jackson
Motor controlling mechanism..... P. A. Sheley
Motor regulating device, Petroleum..... F. Charron et al
Mower attachment, Lawn..... F. Moennighoff
Music leaf turner..... F. E. Norton
Music roll, Traveling..... H. M. Smith
Musical instrument..... A. Leitch
Musical instrument, Mechanical..... E. P. Reissner
Musical instrument playing attachment..... J. A. Cameron
Musical instruments, Automatic music playing..... H. W. Sherrill
Muzzle..... W. A. P. P. P.
Nail machine, Wire..... J. F. D. D.
Netting fabric..... J. F. D. D.
Nozzle..... C. R. Collier
Oil burner..... E. E. Burke
Oil burner, Crude..... T. E. Lewis et al
Oil burner for steam boilers..... F. Burger
Oil separator..... 2 pats..... W. F. D. D.
Oiling device and alarm, Engine P. G. Tisser
Optician's frame cage..... J. H. Hales
Ore, Agglomerating magnetic..... E. Gates
Overshoes, rubbers, or the like, Holder for..... A. E. Lotstrom
Packing, Metallic..... E. L. Clark
Packing, Piston..... W. H. Lang
Pattern chain..... A. Weimar
Penholder attachments..... J. A. Cybert
Photographic developing apparatus..... H. C. Fuller et al
Photographic printing apparatus..... H. R. Watts
Piano damper action..... W. A. Earhart
Piano tuning device..... C. Keen
Pipe..... C. T. Baumgardner
Pipe bending tool..... A. P. Lakin
Pipe collapsible core bar..... A. S. Goldie
Pipe or like cutter, Automatically adjusting..... L. Kissling
Pipes, Hydraulic internal riveter for..... J. Thode
Pistol, Fire cracker..... G. W. Hanson
Planter, Corn..... T. M. Thomas et al
Planter, Riding..... A. A. Finney
Plate holder..... S. French
Plow..... H. Mull
Plow moving boat..... H. O. Prunum
Plow or cultivator clamp..... C. Grabe
Plowshare..... W. T. M. Brunnemer
Pneumatic despatch tube systems, Carrier for..... C. H. Burton
Pocket, Rule..... J. W. Keeley
Pole appliance..... T. H. Briggs
Polishing mill, Round bar..... V. E. Edwards
Power wheel..... G. Rosina
Printing device..... P. T. Hahn
Printing textile materials..... J. Cadgene
Pulverizer or cultivator..... J. Dorsett
Pump, Steam..... J. E. Douglas
Punching machine..... M. G. Gans
Push button..... E. Brusseau
Rail joint..... C. J. Reese
Rail joint..... W. J. Forsyth
Rail joint..... T. E. Laroy
Rail joint..... J. Betsch, et al
Rail joint and chair, Combined..... J. Davis
Rail, Movable flange..... R. F. Stuart
Rail, Third..... A. H. Hopkins
Rail tie..... W. F. Kerlin
Railway brakes, Controlling electric..... J. S. Lockwood
Railway cross tie..... E. S. Keefer
Railway crossing and signal..... C. E. Davis
Railway, Electric..... F. Anstett
Railway fog signaling apparatus..... H. F. Clayton
Railway signal, Electric..... S. W. Huff
Railway signaling device, Electric..... G. Schreiber
Reamer, Pitch..... T. Pendergast
Refrigerating apparatus..... C. L. Daly
Refrigerator..... C. H. Coolidge
Refuse burner..... R. Moore
Respirator..... D. Craig
Rolling machine, Thread I. L. Replogle et al
Rolling mill roll releasing device..... J. L. Rhetstrom
Roofing plate, &c., Metallic..... H. C. Ferron
Rotary engine..... J. Conway
Rotary engine..... F. C. Keith
Rotary engine..... H. Lundqvist
Routing board..... A. Hines et al
Sample holder..... G. J. Sauer
Sash lock..... O. Kulhauek

Continued in March number.

Canadian Patents

Canadian Patents may now be obtained by the inventors for any of the mechanical inventions named in the foregoing list, provided they are simple, at a cost of \$30 each. If complicated the cost will be a little more. For full instructions address Inventive Age Publishing Co., 918 F Street N. W., Washington, D. C.

Foreign patents may also be obtained in certain other countries.

FREE! Send us 2 cents to pay for postage and we will mail you a valuable copyrighted book, "How to obtain Patent, Copyright, Trade-Mark and Copyright Protection, with Decisions in Leading Patent Cases" entirely free of charge. Address: **INVENTIVE AGE PUBLISHING COMPANY,** (Dept. P.) WASHINGTON, D. C.

To Old And New Subscribers Alike.

One Year's Subscription to The INVENTIVE AGE & PATENT INDEX AND WEBSTER'S DICTIONARY (AS DESCRIBED,)

CARRIAGE CHARGES PREPAID,

BOTH FOR \$2.75

LESS THAN HALF THE PRICE OF THE DICTIONARY ALONE

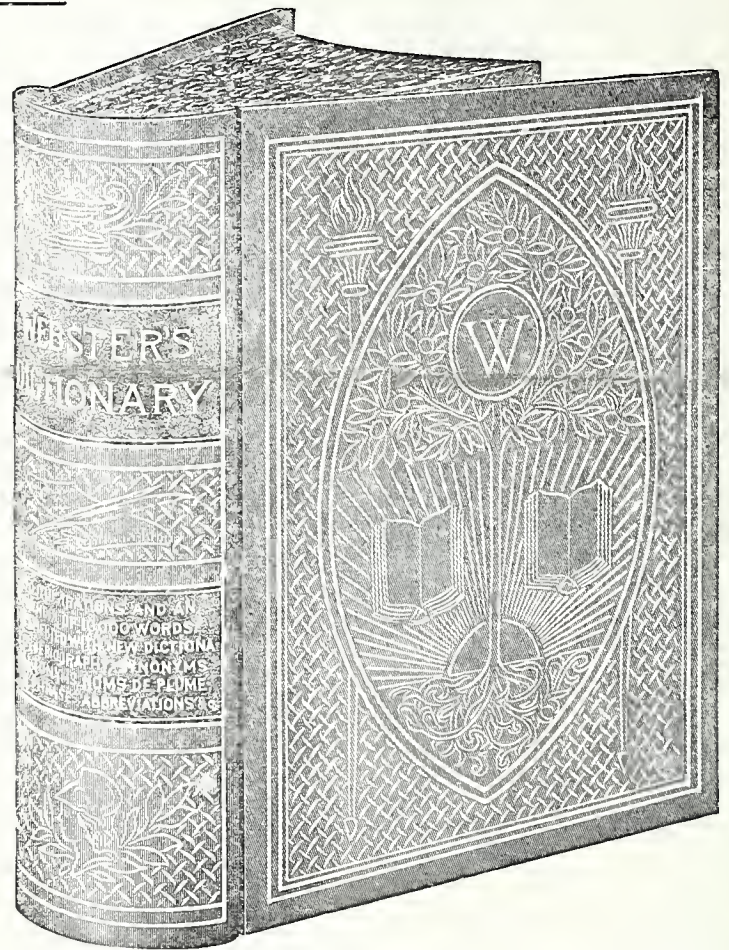
This Dictionary contains every word found in the original Webster's,

IN ADDITION

- | | |
|----------------------------------|---------------------------------|
| (a) An appendix of 10,000 words, | (g) Familiar Allusions, |
| (b) A dictionary of Biography, | (h) Musical Terms, |
| (c) Synonyms and Antonyms, | (i) Heroes of Prose and Poetry, |
| (d) Noms de Plume, | (j) Dictionary of Mythology, |
| (e) Foreign Phrases, | (k) Modern Geographical Names, |
| (f) Abbreviations, | (l) Latin Names, etc., etc. |

THIS IS A GREAT OPPORTUNITY.

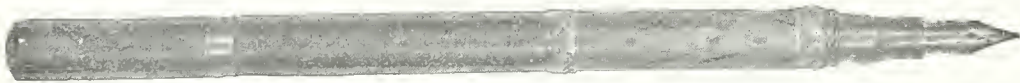
Address: **THE INVENTIVE AGE PUBLISHING CO., WASHINGTON, D. C.**



1540 Pages; 1500 Illustrations; Full Library Sheep Binding; Dennison's Patent Index; Size, 4 x 9 x 10 Inches; Weight eight pounds.

A Remarkable Offer.

The "POST" SELF-FILLING AND CLEANING FOUNTAIN PEN.



No Filler. No Soiled Fingers. No Lost Time. Simple and Perfect.

IT IS AWAY AHEAD OF ANY OTHER
PEN MANUFACTURED BECAUSE
OF ITS SELF-FILLING AND SELF-
CLEANING FEATURES.

BEING THE ONLY ONE MANU-
FACTURED HAVING THESE
CONVENIENCES.

We will send this famous pen, postpaid, and one year's subscription to "The Inventive Age," for \$2.00.

Every inventor in the country needs "The Inventive Age," and everyone needs a pen. Here's your chance to get a bargain.

There are many pens on the market, some have been sold for years and are very popular, but we venture to say that all the pens manufactured together have not such a list of recommendations as the "Post" has secured. We have testimonials that a million dollars could not buy. In the list will be found leading men in politics, finance, law, religious movements, literary men, bankers and business men. Men who have never before allowed their names to be used in this way have not hesitated to recommend the "Post" and in terms of praise simply unqualified. Send for list of testimonials.

Pen has gold nib. When ordering state whether a fine, medium or stub point is desired.

Address: **THE INVENTIVE AGE Publishing Co.**
918 F St. Northwest, Washington, D. C.

A New Premium Offer.

WOMAN'S HOME COMPANION.

This magazine is edited and made up in the city of New York, the leading literary and art center of America. It contains the most timely illustrated articles, the most beautiful illustrations, the best short stories, the most popular serial stories, the most practical household departments, the best of everything desirable for a home magazine. It is printed on the finest paper, has 44 to 60 large pages, 11 by 16 inches. The twelve numbers will contain more than one thousand beautiful illustrations. Each month it carries a message of help, profit, pleasure, education, culture and refinement to over two million readers. Its editors and contributors are the most popular American writers. It is altogether the cleanest, brightest, handsomest, choicest and best of the American home magazines.

WOMAN'S HOME COMPANION	One year \$1.00	A total value of
INVENTIVE AGE & PATENT INDEX	One year 1.00	
		\$2.00

BOTH PAPERS ONE YEAR TO ANY ADDRESS

FOR
ONLY **\$1.25**

The above offer applies to new subscriptions only. Send all orders to

THE INVENTIVE AGE PUBLISHING CO.
WASHINGTON, D. C.

A JOURNAL
OF MANUFACTURING
INDUSTRY

THE Inventive Edge

AND PATENT INDEX.
AND SCIENTIFIC PROGRESS.

SEVENTEENTH YEAR.
No. 3.

WASHINGTON, D. C.—MARCH, 1905.

SINGLE COPIES 10 CENTS.
ONE DOLLAR A YEAR.

HOW ELECTRIC LAMPS ARE MADE.

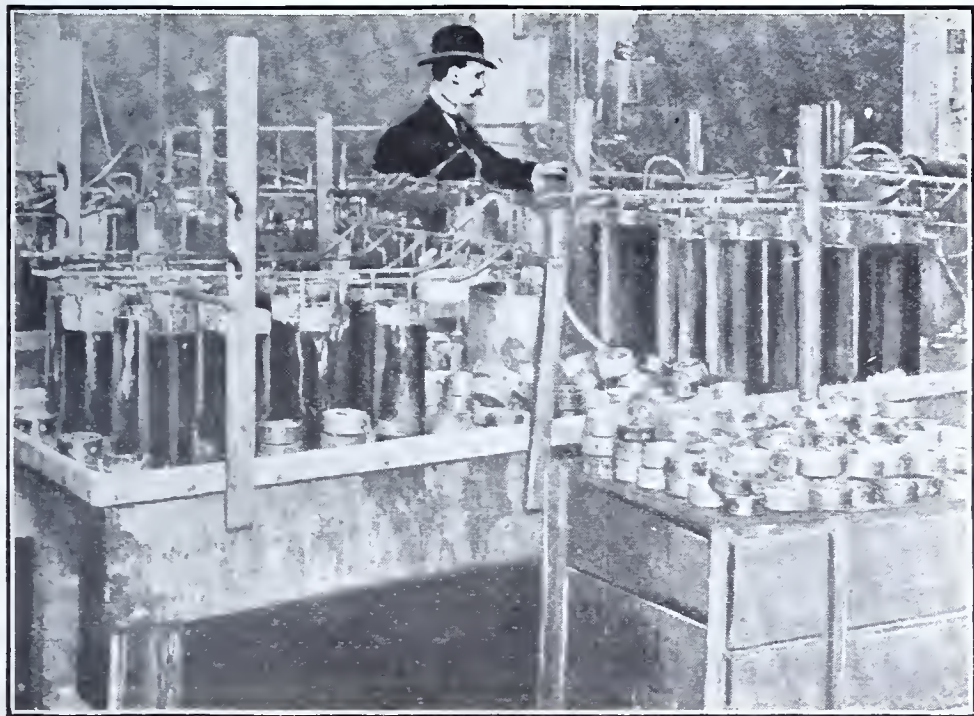
A DESCRIPTION OF THE PROCESS OF MANUFACTURE OF A WELL KNOWN
BUT LITTLE UNDERSTOOD ARTICLE—BY HARRY GOODING.

SOME things are not so simple as they look. An electric lamp is one of them. A small glass globe, bulged and slightly pointed; a trickily looped filament, with tips of platinum; a cap of brass or vitrite—and that is all. At least, it should be all; but unfortunately it very often isn't, and that is just where a great part of the trouble comes in. Readers of "Gulliver's Travels" will recall the

manufactory, grasping a handful of fine raw cotton, "is process number one," and he cast the offending ball into a vat containing a solution that looked like treacle or soft soap, but proved on inquiry to be a cellulose mixture of wool and chloride of zinc. When sufficiently cooked, this unpromising stuff is squeezed, sausage-like, through nozzles of varying degrees of fineness into tall glass jars

filled, the formers are snugly packed in crucibles containing graphite and borne away to the infernal regions, where they are baked in ovens of varying temperatures for twenty four hours. The next step is to mount the two ends on platinum wires. A machine cuts the platinum wire into strips of the requisite length, leaving at the end of each piece a tiny tube or socket into which the hairlike filament is dexterously insinuated and then tightened with a pinch of the tweezers. Platinum, as well as being one of the heaviest and most ductile of metals, is one of the dearest; and it may surprise the uninitiated to know that the scarcely seen platinum leads alone

In the next department—one of the most interesting in the factory—each worker has by her side a small tank of hydro-carbon. Having been placed on an electrically connected clip, the filament is lowered into the fluid, the operation automatically switching on the current. The platinum ends become white-hot, and carbon is thereby deposited on the joints, establishing a perfect electrical and mechanical connection. The joint having been perfected, it is still necessary to make the filament of even electrical resistance throughout, and also to reduce that resistance to the proper point. It is, therefore, passed to the "flashing" room and placed under the glass



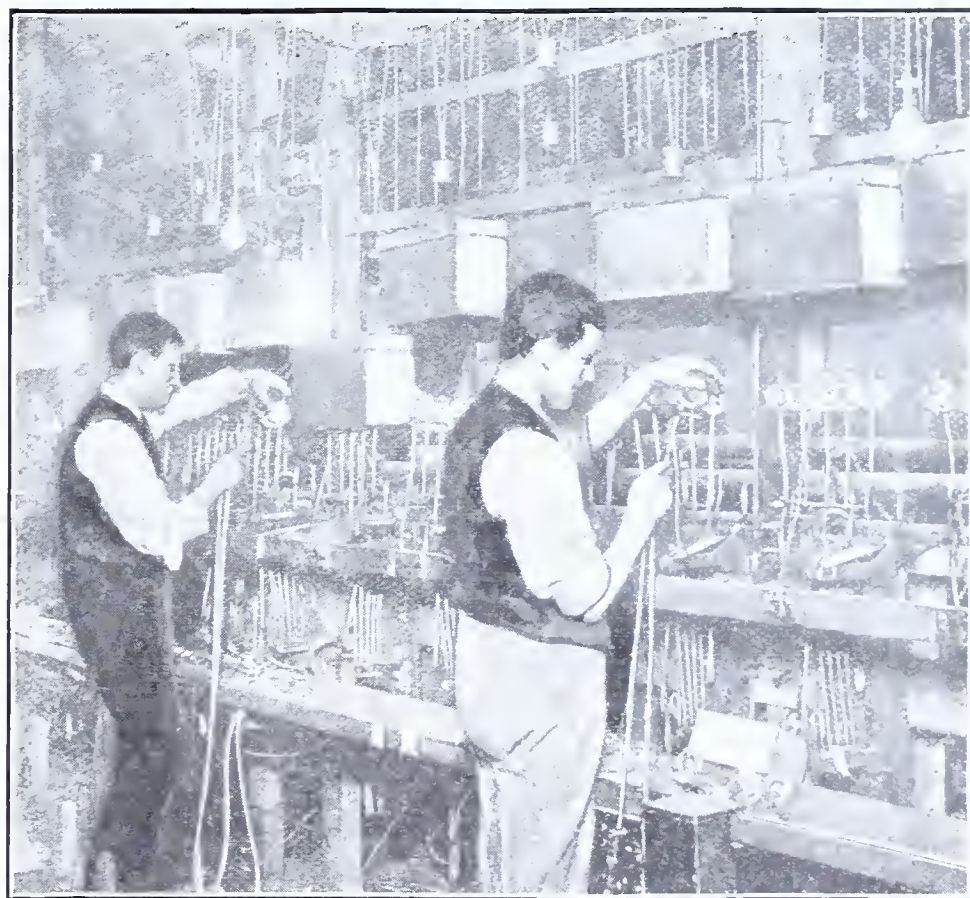
MAKING THE FILAMENT FOR INCANDESCENT LAMPS.

grimy academician of Lugado, who "had been engaged for eight years upon a project for extracting sunbeams out of cucumbers"; but even the feat of this worthy, had it succeeded, would have been no more wonderful than that actually accomplished by present-day electricians in evolving sunbeams, or their equivalents, out of raw cotton. For the basis of that radiant "inside wire," as the uninitiated have been known to call the filament, is simply the harmless fiber of the cotton plant which is elaborately treated.

"This," said the manager of a large

containing spirit. The coils are left to harden in the liquid for three or four days, and are then immersed for twenty-four hours in running water to remove all trace of chemicals. They are next wound on large revolving drums to dry.

The thread has now to undergo the ordeal of fire by way of preparation for the worse ordeal of electrocution. Having been cut into lengths, it is wound—being still quite pliable—around "formers," which answer the purpose of a lady's curling-tongs and give the characteristic loop so necessary to a self-respecting lamp. When



EXHAUSTING THE AIR FROM THE BULBS.

cost from two to three cents, according to the current market price.

But the joint between filament and platinum is far from satisfactory yet.

receiver of an air pump. The air—having been exhausted, a hydro-carbon vapor is introduced and the current switched on, causing the filament

to become incandescent and to absorb the surrounding carbon. The thin places get hotter than the rest, and carbon is more rapidly deposited on them, so that the unevenness is soon removed. Not until the galvanometer shows that the resistance has been brought down to the required degree is the filament withdrawn. The thread is now considered at last fit for inclosure in the bulb which is to be its home. To place it in is by no means so easy an operation as might be thought. Each man has before him a revolving fire-clay stand, bearing a

left, so the bulb is passed on for twenty minutes to a mercury pump in order to produce a finer state of exhaustion. When the exhaustion is as nearly complete as it can be made, the lamps are treated to a strong current, something like fifty per cent more than they will ever be called upon to endure in actual use, the object of this "over-running" being to drive any remaining gases from the filaments.

The lamps which emerge successfully from this preliminary test are then sealed at the nipple end and



TESTING RESISTANCE OF THE FILAMENT TO ELECTRIC CURRENTS.

distant resemblance to the egg holders which grace our breakfast tables. Each holder will contain about sixteen bulbs. Taking a bulb from the box in which it has arrived from the glass factory, the operator melts it at the nipple by means of a gas flame and seals on a tube of glass. This is handy later on for exhausting the air, and is very useful in the present

passed along for further tests. It is first necessary to make sure of the vacuum. Another test is made for endurance: and the lamps are then taken to the photometer, or light-measuring rooms, where, by means of prisms and other devices, the candle-power and consumption of each are exactly measured. They are then classified, and, after further inde-



THE FINAL TEST BEING GIVEN TO THE LAMPS.

stage as a handle. The bulb is now opened sufficiently at the other end to enable the filament to be passed in, after which the lips are closed by means of the blowpipe, only the ends of the platinum wires being left outside.

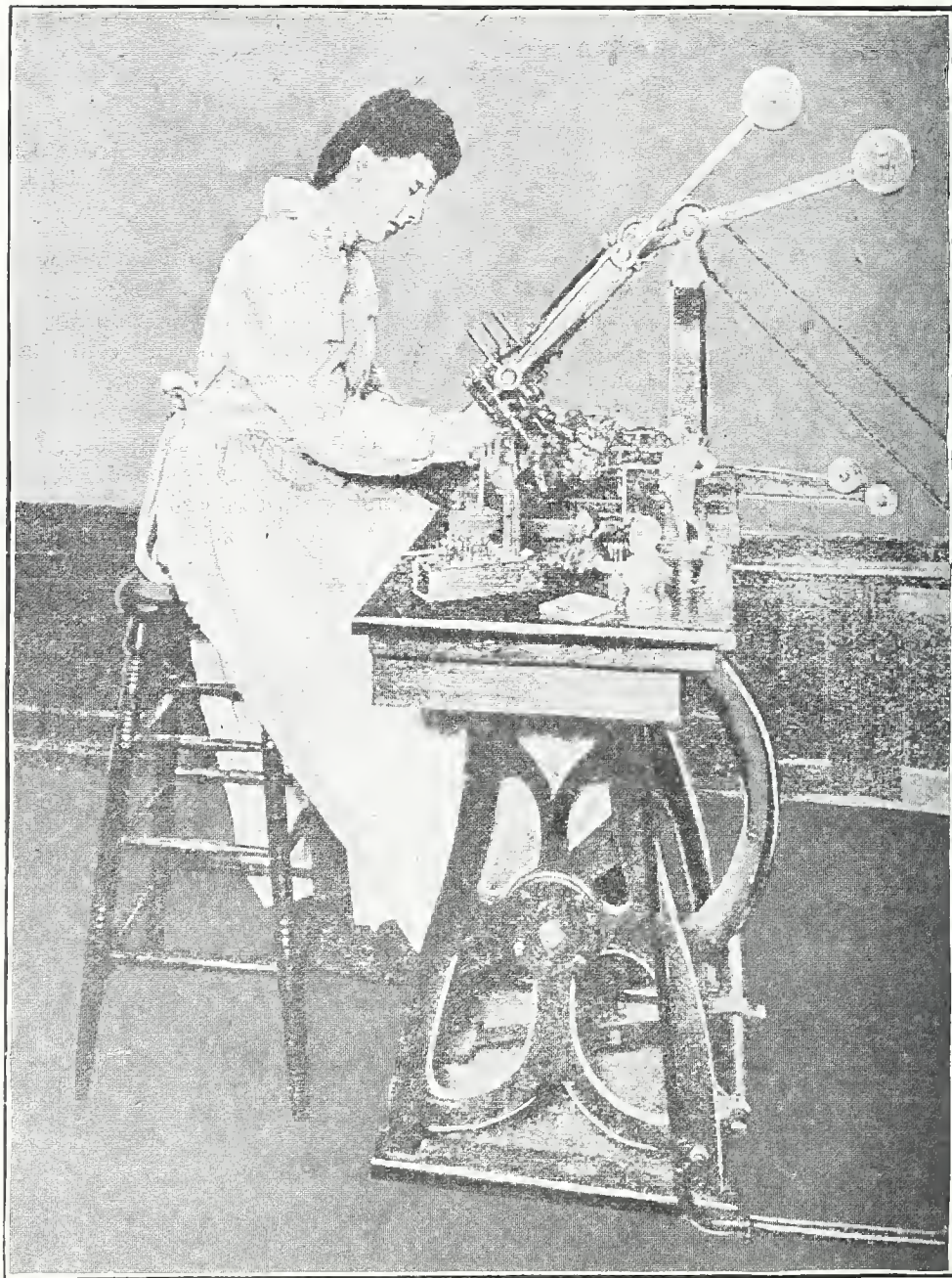
Now comes the difficulty of the vacuum. To secure a perfect light it is absolutely necessary to exclude all air from the bulb. In the next room the tubes which were sealed to the nipples of the bulbs are stuck on the glass orifices of the exhausting chamber, and a mechanical pump is set to work. After it has done its best or worst, there is still plenty of air

pendent tests to insure that no error has been made in the record, and that the vacuum is still perfect, the lamps pass on to be capped. The lamp may now at last be regarded as complete; but before it is allowed to leave the factory, it is subjected to still further tests, the most skilful and experienced hands being employed as final examiners. Then the name of the lamp is stamped on, with its voltage and candle-power; and, after being carefully packed, it is ready to go forth to lighten our darkness. The life of a well-made lamp is calculated at about a thousand hours, but they often last longer.—*Pearson's Magazine*.

STONE CARVING BY MACHINERY.

THE application of machinery to sculpture and stonework is another step in the revolution of the methods of the past. In this branch of industry, indeed, there was room for improvement, for the processes of the sculptor have not changed since the days of the ancient Greeks. While all other branches of endeavor have shown marvelous progress, in many branches of art there has been positive retrogression, even from the mechanical side alone. The means employed by the Egyptians for working in stone: the pigments of the painters of the Middle Ages; the constituents of cer-

of a horizontal metal arm fixed in a socket, working up and down on a vertical rod. Placed at a fixed mark upon the "scale stone" the horizontal pointer is projected until it touches a salient point on the clay model. When the instrument is removed to the second "scale stone," and the base placed in the corresponding position, it is obvious that, if the point exactly touches the surface of the marble block under the process of chiselling, the work, so far as that particular spot is concerned, is carried far enough. The carver then proceeds to strike away the superfluous marble,



THE MACHINE AT WORK.

tain forms of pottery and the methods of staining glass are lost to us; and until the application of this new machine for carving stone, we have patiently followed the same practices that were in vogue centuries before the time of Christ.

Today, as over a thousand years ago, the artist models his figure in clay and gives it to the workman, to whose hands the task of roughing out the statue from the marble, or casting it in metal, is consigned. The rough block of stone is set up with the clay image on what are called "scale stones." Then comes the task of "pointing." The instrument consists

always guiding and checking himself by the pointer, until the figure is complete in the rough. A highly skilled worker then tools over the rough statue with chisel and file, following out the more delicate mouldings of the copy, and lastly, it is handed to the sculptor himself, who puts in the final touches of expression, texture, and so forth.

Few indeed have been the sculptors who have had the masterly touch and confidence to strike out their statues straight from the marble mass, without recourse to the preliminary model. Michael Angelo was one of these giants. To appreciate the daring of

such a man it must be remembered that a single false stroke might ruin months of labor. To obviate this danger as much as possible, the moderns have instituted a method by which the surface of the marble block is first honeycombed with numerous tiny holes—15,000 have been drilled for a single bust—the depth of each of which is accurately gauged by the pointer. The comb of superfluous stone is then struck off by the workman, and the figure in the rough remains.

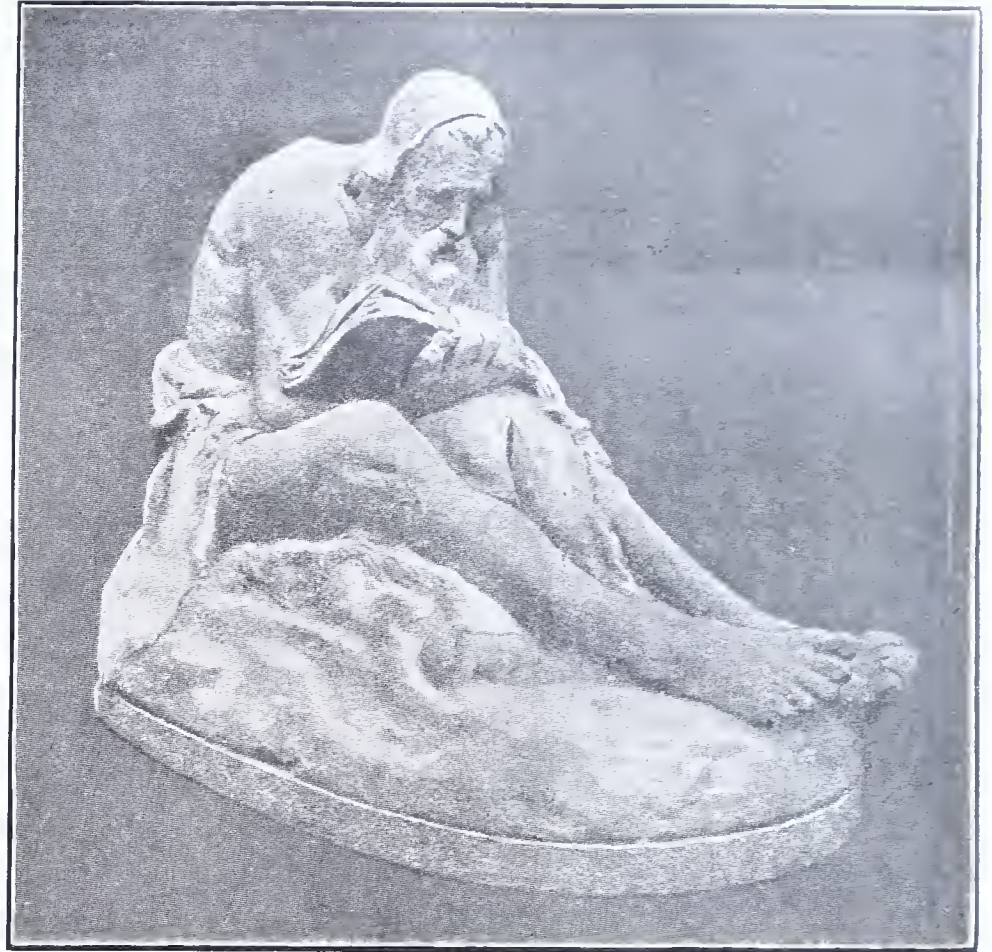
This process, it is obvious, is tedious and costly, and involves weeks or months according to the size of the statue. With the new machine, mistakes are said to be impossible. The

The operator, seated at the machine, (see Fig.) swings down the delicately counterpoised frame until the dummy pointer is hovering over the model to be copied. Instantly the revolving drills cut into the rough blocks of wood or stone on either hand, shaping them speedily as the pointer is moved to and fro. In the earlier stages of the work, drills of larger size are necessary to clear away the superfluous material quickly; then as the copies begin to assume their exact form, and the pointer is enabled to deal with the detail of the model, these are exchanged for finer tools.

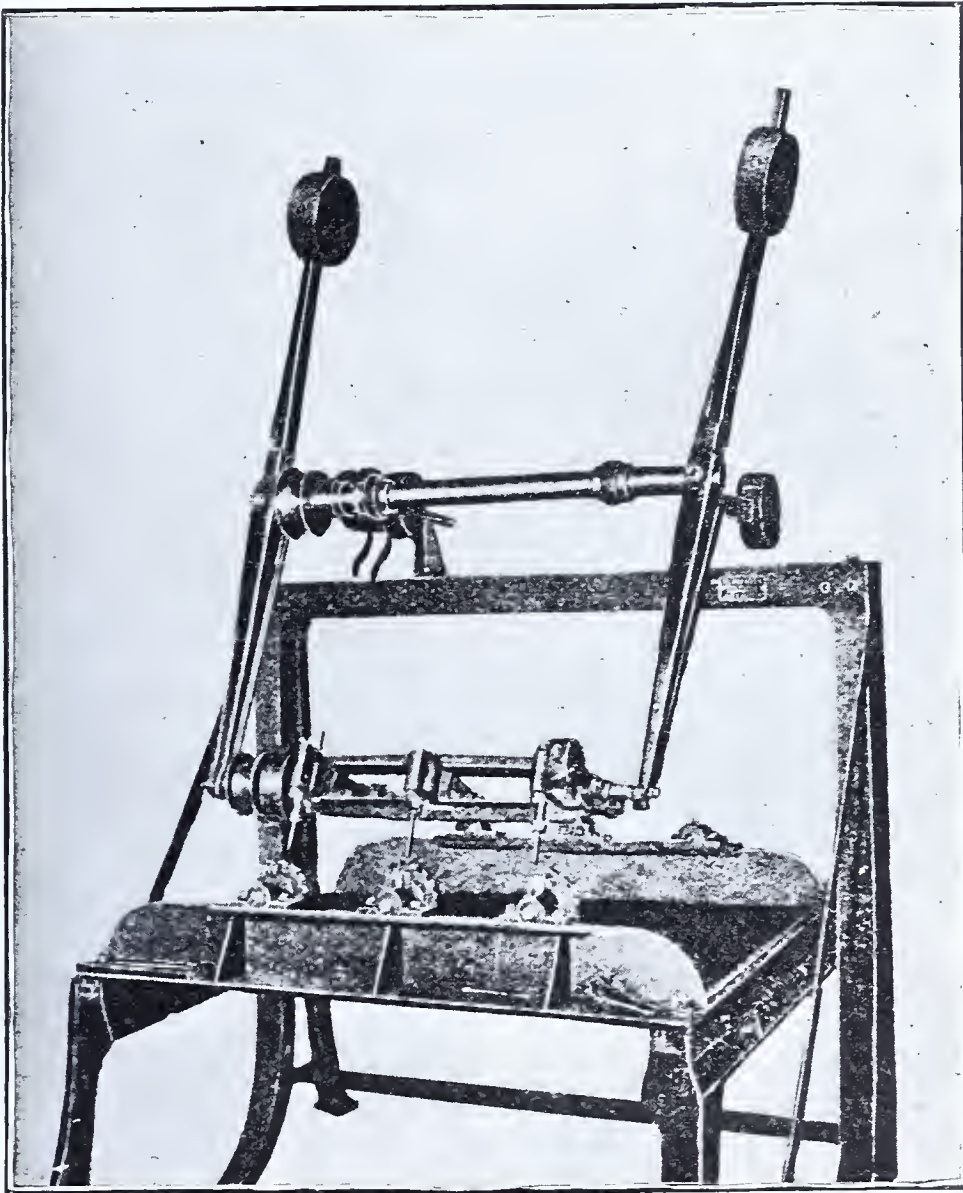
It is said that the accuracy and speed of the machine must be witnessed to be appreciated. There is

Wenzel machine, and is owned by an English company. Any one wishing further information can apply to the Manager, Machine Sculpture, Limited, 27a, Cannon St., London, E. C.

The illustrations show the apparatus at work and an example of the finished product, and are taken from "Patents" published in London, to which we are indebted for the information contained in this article.



WORK DONE BY THE WENZEL MACHINE.



THE MACHINE.

apparatus does its work unerringly, efficiently and speedily.

The invention is simplicity itself, both in construction and the method of handling. On a horizontal bed or table, the model to be copied is clamped securely in position between what are termed "heads." Ranged on either side are corresponding heads, two, four, or six in number, according to the size and capacity of the machine, and in these are fixed blocks of wood, marble, or metal from which the copies are to be carved.

Above this table, suspended on a counterpoised steel frame of delicate balance, and perfect freedom of manipulation, are arranged the drills, driven by electricity, gas or treadle power, which are to perform the work. The centre "pointer" is a dummy and is controlled by the operator.

no demand for special care on the part of the manipulator, whose task is rendered almost automatic under the control of the pointer: for when the latter touches any portion of the surface of the model, the drills on either hand necessarily cease from biting, and errors are consequently impossible.

All that the skilled marble-cutter can do, the machine performs: it is also adapted to take the place of the carver in stone. Friezes, cornices and capitals, which have represented months of expensive toil, may now be reproduced rapidly and in any quantity by this apparatus, which can be adapted to work on the scaffolding itself.

Wood carving, too, can be executed at a comparatively small cost, and the machine is likewise adapted for working in metal. It is called the

Wireless Telegraphy.

The Wireless Telegraph Exploitation Company, of New York, N. Y., is the owner of a patent recently granted to Frederick K. Vreeland, of Montclair, N. J., on a method of receiving electromagnetic waves or other feeble signal impulses. The invention is especially useful for the reception of signals in wireless telegraphy, and depends upon the discovery made by Mr. Vreeland that an electrolytic cell of a special character, when polarized to the proper critical point by a local battery, is extremely sensitive to transitory or rapidly oscillating currents from another source, which, when passed through it, tend to depolarize the cell and cause it to offer less opposition to the passage of the

local current, which rises and falls in value with the presence and absence of the transitory waves or impulses, and affords an effective means for operating a telephone or other signal receiver. The method consists in polarizing an electrolytic cell having a minute anode by means of a local source of electromotive force, producing at the cell a voltage above the decomposition voltage of the cell but below the point where a violent evolution of gas is caused, passing the waves or impulses to be detected through said cell and thereby wholly or partially depolarizing the same, whereby the current in the local circuit will be increased, and observing the variations in flow of the local current.

PATENTS

Send Your Business Direct to Washington ∴ ∴
∴ ∴ Saves Time and Insures Better Service.

Caveats,
Trade Marks,
Copyrights
and
Designs.

My office is close to U. S. Patent Office. FREE report as to patentability made. Personal attention given—TWENTY-FOUR YEARS PRACTICE. Book "How to Obtain Patents," etc., sent free. Patents procured through E. G. Siggers receive special notice, without charge, in the—

INVENTIVE AGE

Illustrated Monthly—Seventeenth Year.
Terms, \$1.00 a Year.

E. G. SIGGERS, 918 F STREET, N. W.,
WASHINGTON, D. C.

CLEVER NEW PATENTS.

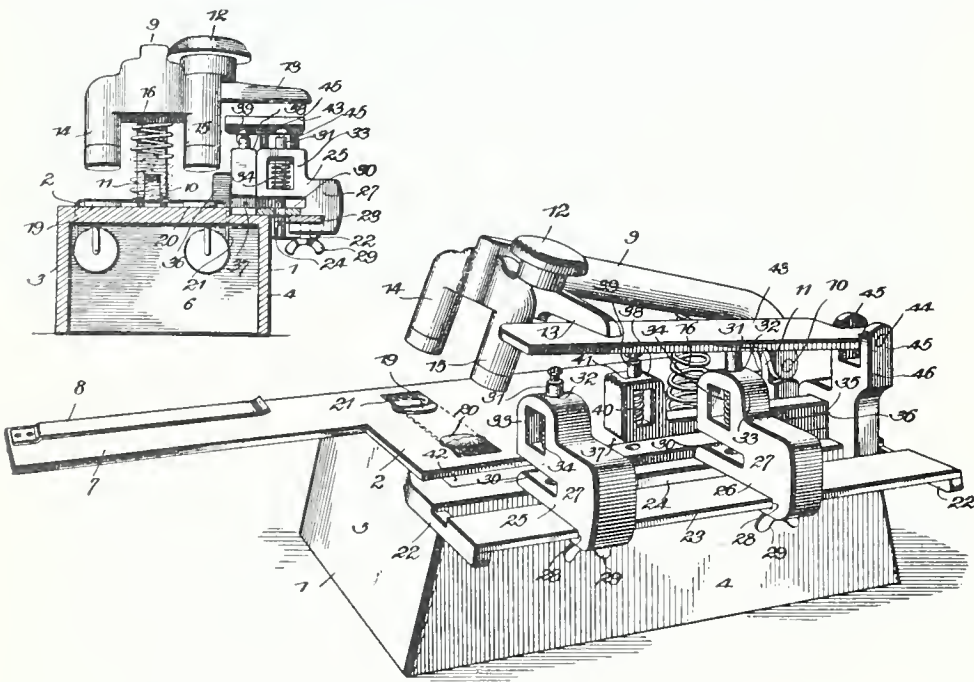
TICKET STAMP AND PUNCH.—NOVEL GRAIN SEPARATOR.—SPRING MOTOR.

Ticket Stamp and Punch.

A novel combined ticket stamp and punch has been patented by Mr. Anthony S. Martin, of Maiden, N. C., who has assigned a one-half interest in his patent to Mr. John W. Blackwelder, of the same place.

The aim of the inventor has been to produce a device which will be simple of construction and efficient in operation, and one in which the original and duplicate sections of the ticket will be dated at a single stroke of the stamp-head. Another feature of the invention resides in a plurality of independently adjustable punchers for perforating the original section of the ticket to indicate the year, month and day of sale, these punchers being operated simultaneously with the operation of the stamping-head. Referring to the illustration, 1 indicates the base of the stamp and punch in the form of a hollow case. The top plate thereof has a forwardly-extending horizontal arm 7, to which is secured a spring-blade 8, employed for separating the original from the duplicate section of the ticket.

9 indicates a pivoted stamping-arm provided at its forward end with a hand-piece 12, a laterally-extending horizontal arm 13, and a pair of spaced head members 14 and 15. The stamping arm is normally maintained in an elevated position by means of a spring 16. The head members 14, 15 co-operate, respectively, with character-bearing dies 19 20, which are associated with the top plate of the base 1, for simultaneously stamping the original and duplicate sections of a ticket, the dies 19 20 being provided with an overlying stamping-ribbon 21. 22, 22 indicate a pair of horizontal arms which are associated with

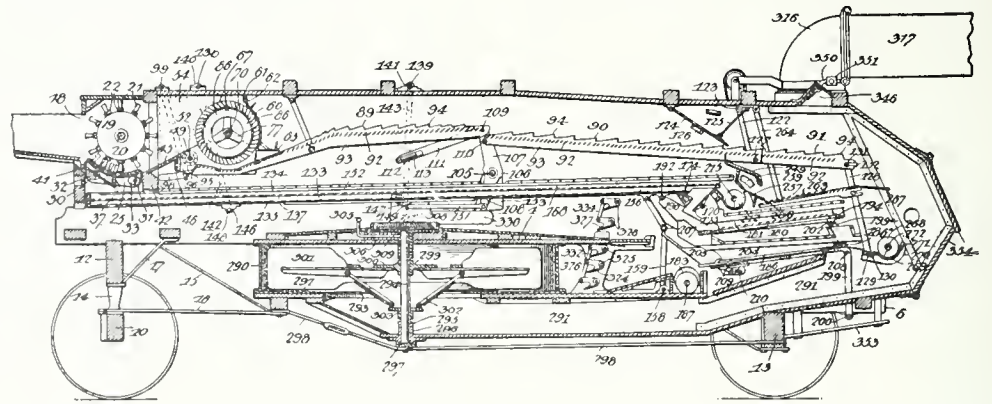


the base 1, and project laterally therefrom and sustain a guide-plate 23, which is spaced from the side of the base to form an opening 24. Adjustably mounted upon the guide-plate 23 are a pair of punches 25, 26. 35 indicates a horizontal member which is slidable longitudinally of the base 1, and is guided in its sliding movement by a guideway formed in a block 36. This member, which is slotted longitudinally, as at 37, is provided at its forward end with a head 38, in which is mounted a vertically-reciprocating punch-plunger 39, under control of a spring 40, mounted in a recess 41 of the head. The slot 37 in the member 35 is designed to receive the ticket or other article under operation, and to maintain the same in proper register with the punches 25, 26, the adjustability of the member 35 serving to permit of its proper arrangement relative to said punches and the arrangement of the parts according to the size of the ticket to be acted upon. 43 indicates a pivoted presser-plate which overlies the three punches 25, 26, 39, and is operated by the arm 13 of the stamping head to simultaneously actuate the several punches when the said head is struck.

Novel Grain Separator.

In threshing machines and separators, one of the main objects sought to be obtained is to effect the separation of the grain from the straw at the earliest possible stage. As the straw progresses through the machine, however, it carries with it more or less grain, and, while a considerable portion of this grain is separated and saved, it is conceded that even in the most perfect machines known at the present time, there is a percentage of waste which constitutes an important item of loss to the farmer. To minimize, and even totally avoid this loss, is the object of an invention recently patented by Mr. Gran W. Hill, of Alexandria, Mo. A sectional view through a separator constructed in accordance with this invention is herewith illustrated. It will be observed that directly in rear of the threshing cylinder 19 is a separating cylinder 67, located in the path of material discharged by the threshing mechanism. This cylinder has an exterior surface formed by a plurality of relatively overlapping slats spaced apart and disposed tangential to a circle of smaller diameter than the cylinder. The cylinder has side openings for the passage of grain and finer particles, and constitutes an obstruction to the passage of straw and coarser particles. A rotary grate 49 co-operates with the cylinder to feed the straw and coarser particles to the same, and a reciprocatory straw rack reduced at its front end 89, extends between the sides of an auxiliary casing below and in front of the separating cylinder. A suitable grain pan 133 is also provided having a grain bottom and a separating bottom extending in rear of

the grain bottom. A shoe 181 has a pivotal connection with the grain pan and contains a cleaning screen, while a delivery screw is disposed in a casing beneath the discharge end of the grain bottom. Mechanism is employed for directing the discharge from the grain bottom at the will of the operator, either onto the cleaning screen or into the casing of the delivery screw, and a double screw is

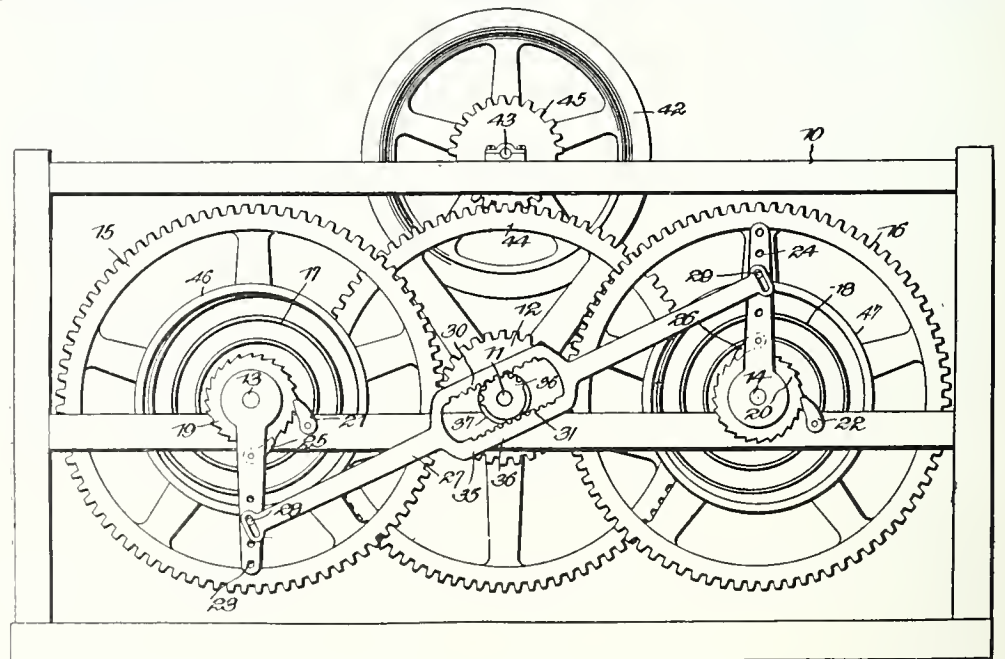


disposed in a casing beneath the discharge end of the separating bottom of the grain pan, and delivers the discharge from such separating bottom in opposite directions through the walls of the machine casing. Grinding means of a novel nature are also employed for operating upon the threshed material to which grain still adheres. This grinding means consists of stationary burrs having flanges extending through openings in the walls of the machine casing. Revolvable burrs co-operate with the stationary burrs and are enclosed in suitable casings. A screw casing is supported upon, and connected with, the flanges of the stationary burrs, and in this casing is a left and right screw which receives the threshed and partly separated material and delivers the same to the burrs. Auxiliary openings are formed in the machine casing and are disposed peripherally of the burrs and concentric therewith, while means connected with the burrs, transmit the material operated upon by the same, through the openings, into the casing of the machine. Furthermore, a fan casing is disposed horizontally under the floor of the machine, and a duct connects the central portion of the bottom of the casing with the tail end of the machine. A vertical shaft is provided with bearings within the casing, one of which bearings is connected with the bottom of the inlet duct. A suction fan is mounted upon the shaft, and inclined braces connect the leaves of the fan with an auxiliary hub upon the fan shaft, while an eduction spout connects the side of the fan casing with the discharge spout.

Spring Motor.

This invention appears to be an attempt at perpetual motion, or at least a step in that direction. The inventor is Mr. Wilhelm Weiner, of Wymore, Neb., and a one-half interest in the patent obtained thereon has been assigned to Mr. Henry Schmitz, of the same place.

Mr. Weiner states that the invention relates to improvements in motors operated by spring power, and that the object is to simplify and improve devices of this character, and to produce a motor wherein a portion of the power exerted by the springs is utilized to alternately rewind the springs and thus prolong the running time. A main frame is employed on which is mounted a driven shaft 11 carrying a pinion 12. Spring shafts 13, 14 are journaled on the frame at opposite sides of the driven shaft and have gears 15, 16, engaging the pinion thereof. Springs are connected to the spring shafts to independently rotate the same, and ratchet wheels 19, 20, located on the spring



shafts, are actuated by reversely disposed ratchet levers 23, 24, also mounted upon the shafts and having pawls 25, 26, engaging the wheels. An arm 27 is connected at its ends to the free ends of the ratchet levers, and this arm is vibrated by a mutilated pinion 36, carried by the driven shaft and engaging a double rack 30, 31, formed on the arm. By this arrangement, as the shaft 11 revolves, the teeth of the pinion 36 engage the rack 30, 31, as the case may be, and moves the arm 27 in one direction, and at the end of the stroke the mutilated pinion is rolled over against the opposite rack and the arm 27 moved in the opposite direction, and so on, as will be obvious, the action causing the mutilated pinion to be alternately engaged with the racks 30, 31, and correspondingly moving the arm 27 back and forth, and by reason of its connection with the levers 23, 24, this movement will intermittently and alternately wind up the springs to an extent equal to the throw of the arm. By this simple arrangement, the power of the springs is utilized to continuously rotate the shaft 11, and a portion of its force utilized to rewind the springs, and thus prolong the period of their activity.

LATEST COURT DECISIONS IN PATENT & TRADE-MARK CAUSES.

WARREN FEATHERBONE CO. v. AMERICAN FEATHERBONE CO. et al.

(Circuit Court, N. D. Illinois.)

PATENTS—INVENTIONS—FEATHERBONE.

The Warren & Holden patent, No. 559,827, for an improved process for making featherbone for use in corsets, etc., and the resulting product, marked a distinct advance in the art. It was not anticipated, nor is it void for prior public use; and in view of its utility, as shown by the marked success of the new product in the market, it must be conceded to disclose invention. Also held infringed.

BRADLEY v. ECCLES et al.

(Circuit Court, N. D. New York.
Dec. 27, 1904.)

PATENTS—SUIT FOR INFRINGEMENT—JOINDER OF DEFENDANTS.

A bill against two defendants for infringement of a patent, which alleges that defendants, "conjointly contriving" to injure complainant by infringing his patent, have done certain acts of infringement, one by selling and making infringing articles at one city, and the other by using and vending infringing articles in another city, and that they have on hand at their respective places of business large quantities of the infringing article, which they are "conjointly, severally, and individually" advertising, selling, and offering for sale, is not demurrable on the ground that defendants are improperly joined, the acts charged, if done "conjointly" or, by agreement, constituting a joint infringement.

NATIONAL WAISTBAND CO. v. MONHEIT et al.

(Circuit Court, S. D. New York.
Nov. 19, 1904.)

PATENTS—INFRINGEMENT—WAISTBANDS.

The Katz patent, No. 562,616, for a waistband for boys' trousers, discloses a patentable invention of utility, which was not anticipated, nor rendered void by prior public use; also held infringed by a structure in which the change from the patented article was merely colorable.

FARBENFABRIKEN OF ELBERFELD CO. v. HARRIMAN.

(Circuit Court, D. Massachusetts.
Nov. 17, 1904.)

PATENTS—INFRINGEMENT—PHENACETIN.

The Hunsberg patent, No. 400,086, for a new pharmaceutical product, called "phenacetin," held valid and infringed, and an injunction granted, and an accounting ordered by defendant, who, although a retail druggist, shown to have sold only a small quantity of the infringing drug, was selling an adulterated article, which might be very deleterious to the public health.

WRIGHT et al. v. FITZ BROS. CO.

(Circuit Court of Appeals, First Circuit.
Nov. 15, 1904.)

PATENTS—INFRINGEMENT—LASTS.

A shoe last made in accordance with the Fitz patent, No. 652,394, held not an infringement of the Clark patent, No. 388,830, so as to be within a license granted under the Clark patent, nor its manufacture by the licensee a violation of the license contract on the ground that it embodies patentable parts of the Clark invention.

WESTINGHOUSE ELECTRIC & MFG CO. v. ELECTRIC APPLIANCE CO.

(Circuit Court, N. D. Illinois.
March 26, 1904.)

PATENTS—VALIDITY AND INFRINGEMENT—ELECTRIC MOTORS.

The Tesla patents, Nos. 511,559 and 511,560, the former for a method and the latter for a means of operating electric motors, held valid on a motion for a preliminary injunction, as against the defense of anticipation by the Ferraris publication in Milan April 22, 1878, and also infringed.

C. L. KING & CO. v. INLANDER.

(Circuit Court, N. D. Illinois. Jan. 11, 1902.)

EQUITY—PLEADING—MULTIFARIOUSNESS—MISJOINDER OF CAUSES OF ACTION.

A complainant in a federal court cannot

join with a cause of action for infringement of a patent, one for unfair competition in trade, although both relate to the same subject-matter, where there is no allegation of diverse citizenship to give the court jurisdiction of the second cause.

RUSSIA CEMENT CO. v. FRAUENHAR et al

(Circuit Court of Appeals, Second Circuit.
October 19, 1904.)

UNFAIR COMPETITION—USE OF TRADE-NAME.

Complainant manufactured glue of different grades, which it sold under the trade-name of "Le Page." Defendants purchased certain of such glue in bulk, and bottled and sold it under the name of "Le Page's Glue," with a statement that it was manufactured by complainant and bottled by defendants. Held, that such use of the name by defendants was not fraudulent, and did not constitute unfair competition.

MAYO KNITTING MACHINE & NEEDLE CO. v. E. JENCKES MFG. CO. et al

(Circuit Court of Appeals, First Circuit. December 16, 1904.)

1. PATENTS—INFRINGEMENT—KNITTING MACHINES.

The Mayo patent, No. 461,357, for a circular knitting machine, covers improvements in the machine of patent No. 365,528, to the same inventor, chiefly in the manner of pivoting and mode of operation of the pickers. Claims 4 and 6 construed, and held not infringed by a machine made in accordance with the Rowe patents, Nos. 570,059 and 581,887. Claim 11 held void for lack of patentable novelty.

2. SAME—WINDERS.

The Johns patent, No. 600,788, for a rotary winder for introducing an extra thread in machine knitting, is not for a generic invention, and, in view of the prior art, is not entitled to a broad construction, covering every form of rotary winders, but must be limited to the mechanism shown—at most, with a liberal application of the doctrine of equivalents. Claims 1, 2, 3, 4, and 5 are not infringed by the winder of the Rowe patent, No. 581,887, which is an essentially different structure.

3. SAME.

The Ames patent, No. 600,671, for a winder for introducing an extra thread in knitting, being an improvement on that of the Johns patent, No. 600,788, claims 8, 10, and 11, is not infringed by the winder of the Rowe patent, No. 581,887.

CHICAGO WOODEN WARE CO. et al. v. MILLER LADDER CO.

MILLER LADDER CO. v. CHICAGO WOODEN WARE CO. et al.

(Circuit Court of Appeals, Seventh Circuit.
May 12, 1904.)

1. APPEAL—FINALITY OF DECREE IN INFRINGEMENT SUIT—CROSS APPEAL BY COMPLAINANT

A decree in a suit for infringement entered after full hearing on pleadings and proofs, which adjudges title to the patent, the validity of certain claims, and the invalidity of others, the infringement of the valid claims, and awards a perpetual injunction and damages, to be determined on an accounting, is not merely an interlocutory decree awarding an injunction, but it is so far a final decree that, where an appeal has been taken by defendant, who has brought up the record, complainant may prosecute a cross-appeal for the review of that part which adjudges certain of the claims valid.

2. PATENTS—VALIDITY OF CLAIM.

The fact that a patentee described and claimed a "trestle consisting of two pair of legs" pivoted as shown, whereas by the accepted definition a top piece is essential to constitute a trestle, does not render the claim invalid where the meaning is plain, and the legs as shown are adapted to be used with any kind of a top piece to complete the trestle, as intended.

3. SAME—INFRINGEMENT—FOLDING TREXILE.

The Miller patents, No. 343,829, for a folding trestle, claims 1 and 2, and No. 401,848, for an improvement thereon, held valid and infringed.

LATTIMORE MFG. CO. v. JONES et al.

(Circuit Court, M. D. Pennsylvania. October 12, 1904.)

1. PATENTS—INFRINGEMENT—MINERS' LAMP HOLDER.

This Lattimore patent, No. 415,720, for a lantern holder, to be attached to a miner's cap, claim 2, which is general in terms, is void

for lack of invention, in view of the prior art. Claim 1 is valid and entitled to a limited range of equivalents. Such claim also held infringed.

2. SAME.

One who furnishes money to be employed in the manufacture of an infringing article, and acts as agent for its sale, may be joined with the manufacturer as a defendant in a suit for the infringement.

LATTIMORE MFG. CO. v. C. & T. SUPPLY CO. et al.

(Circuit Court, W. D. Pennsylvania. September 20, 1904.)

PATENTS—INFRINGEMENT.

Patent No. 415,720, for lantern holder, considered, and held infringed, as to claim 1 thereof, previously held valid.

WESTERN ELECTRIC CO. v. ANTHRACITE TELEPHONE CO. et al.

(Circuit Court of Appeals, Third Circuit.
December 9, 1904.)

PATENTS—INVENTION—TELEPHONE APPARATUS.

The Carty patent, No. 449,106, for improvements in telephone circuits and apparatus, is void for lack of patentable invention.

ORMSBY v. CONNORS et al

(Circuit Court, D. Massachusetts. November 10, 1904.)

PATENTS—ACTION FOR INFRINGEMENT—TITLE TO SUPPORT.

The owner of a patent made an absolute assignment of the same, which was duly recorded. At the same time the assignee executed a paper showing that the assignment was as collateral security for a debt, and agreeing that the assignor should retain the exclusive right to manufacture and sell under the patent, and to license others thereunder. This agreement was not recorded. Subsequently the debt was paid, and a reassignment made, which expressly covered the sole and exclusive right to all causes of action for past infringements. Held, that the original assignment and the paper executed at the same time constituted a single contract, under which the assignor retained the right to sue at law for infringement of the patent; the fact that the agreement was not recorded being immaterial as against this infringer.

REHBEIN v. WEAVER et al.

(Circuit Court, N. D. Illinois. December 14, 1904.)

TRADE—MARKS—RIGHTS UNDER STATE STATUTE—ENFORCEMENT IN OTHER JURISDICTIONS.

A suit cannot be maintained in a federal court to enforce rights under a state statute relating to trade-marks, and providing for their registration, where the transactions complained of occurred outside of such state.

CONTINENTAL TOBACCO CO. v. LARUS & BRO. CO.

(Circuit Court of Appeals, Fourth Circuit.
Nov. 15, 1904.)

1. UNFAIR COMPETITION—TAGS—EVIDENCE.

Where the method of putting up complainant's plug tobacco was shown to be in common use and not distinctive, defendant's use of a yellow tin label or tag, circular in shape, and about an inch in diameter, but containing printed matter essentially different from that used on complainant's label, was insufficient to establish unfair competition.

2. SAME—TRADE-MARKS—PRIOR APPROPRIATION.

Where tin tags of all colors, including yellow, of various sizes, had been used by tobacco manufacturers for several years, and a yellow tag similar in appearance to that used by complainant had been in use, without complainant's objection, by another manufacturer for 10 years, the size and color of such tag was not of itself such a distinction as either complainant or defendant could appropriate as a trade-mark.

PETTIBONE, MULLIKEN & CO. v. PENNSYLVANIA STEEL CO.

(Circuit Court, E. D. Pennsylvania.
Dec. 5, 1904.)

1. PATENTS—INFRINGEMENT—CHANGE OF FORM.

Infringement is not avoided by a mere

change of form or location of parts, if the same principle is used through the same mode of operation, to accomplish the same result, even though an additional beneficial result is attained through the change.

2. SAME—PRIOR USE—EVIDENCE TO ESTABLISH.

Under the rule that prior use to defeat a patent must be proved beyond a reasonable doubt, the testimony of a single witness, who depends entirely on his memory for the date, and is not corroborated by any facts or circumstances shown, is not sufficient.

3. ANTICIPATION—FOREIGN PATENT.

A foreign patent, to constitute an anticipation which will defeat a subsequent American patent granted to one who had no knowledge of the foreign invention, under Rev. St. § 4923 [U. S. Comp. St. 1901, p. 3396], must describe the invention in such full, clear, and exact terms as to enable any person skilled in the art to construct the device patented.

4. SAME—INFRINGEMENT—SWITCH-STAND.

The Strom patent, No. 498,196, for a railroad switch-stand, the essential feature of which is a construction and arrangement of the parts such as to break the force of the wheel thrust of cars when the switch is operated automatically, and prevent the breaking of the gearing, was not anticipated, and discloses invention. Also held infringed.

SPRAGUE v. BRAMHALL-DEANE CO.

(Circuit Court, S. D. New York. Nov. 11, 1904.)

PATENTS—ACTION FOR INFRINGEMENT—SUFFICIENCY OF COMPLAINT.

The complainant in an action to recover damages for infringement of a patent must show on its face that plaintiff has complied with the requirements of Rev. St. § 4900 [U. S. Comp. St. 1901, p. 3388], by causing the patented article, or the package in which it is contained, to be marked in some suitable manner with the word "Patented."

A. R. MILNER SEATING CO. v. YESBERA.

(Circuit Court of Appeals, Sixth Circuit.
Nov. 10, 1904.)

1. PATENTS—INVENTION—COUNTER SEATS.

The Milner patent, No. 597,686, for improvements in counter stools, used in stores, consisting chiefly of the use of a spring, which automatically throws the seat over toward and under the counter when not in use, although combining old elements, produces a new and improved result, and discloses invention and novelty. Also held infringed.

2. SAME—ANTICIPATION—EVIDENCE.

The fact that a defendant has appropriated the device of a patent, and has been very successful in its sale, is persuasive evidence against him on the defense of anticipation.

3. SAME—INFRINGEMENT—CHANGE OF FORM.

That a defendant has changed the form of parts of a patented device so that they are more clumsy in appearance and less useful, but are functionally the same, does not avoid infringement.

RICH v. BALDWIN, TUTHILL & BOLTON.

(Circuit Court of Appeals, Sixth Circuit. December 3, 1904.)

1. PATENTS—INVENTION—COMBINATION OF OLD ELEMENTS.

There is no invention in selecting and putting together the most desirable parts of different machines in the same art, making a new machine in which each part operates in the same way as it did in the old, and effects the same result.

2. SAME—INFRINGEMENT—SAW STRETCHING MACHINES.

The Rich patent, No. 548,394, for a saw-stretching machine, discloses invention in combining with elements of different prior machines an improved mechanism for moving the rolls to change their place of bearing upon the saw, which has given the machine popularity and a wide sale; but, its validity being dependent alone on such single feature, the patent must be narrowly construed, and is not infringed by a machine in which a different mechanism is used for moving the rolls, although it accomplishes the same result.

3. SAME—IMPROVER.

If validity is given to a patent only by an improvement of a narrow character, just sufficient to cross the line which divides mechanical improvement from patentable invention, the inventor will be protected only as to such improvement as is specifically described, and is but little aided by the doctrine of "equivalents," which term has variable meaning and is measured by the character of the invention.

MECHANICAL INVENTIONS AND DESIGNS

Patents for which have been procured
through the Patent Soliciting Office
of E. G. Siggers, Patent Lawyer,
Washington, D. C.

Samuel M. Musgrave, Bells, Tenn. **Brush or Broom.**—The body of the brush or broom in this instance is made of some soft pliable material, such as sea grass, and is enclosed in a frame comprising wire jaws secured to a head, the jaws being clamped upon the brush by clips connecting such jaws and slidable thereupon. In the rear portion of the body of the broom is located a cross rod, bound in such body by a cord or cable. Thus a structure is provided with a pliable broom stiffened by the frame and adjustable outwardly as the body becomes worn.

Hugh C. Miller, Brenham, Texas. **Boiler Scraper and Cleaner.**—In the lower portion of the boiler is located a blow-off pipe having a slot in its under side, and controlled by an exterior valve. Within the pipe is slidably mounted a stem having an exposed handle, and secured to this stem by means of arms that pass through the slot of the tube, are curved scrapers conforming to the cross sectional contour of the boiler. To clear the boiler of sediment, therefore, it is only necessary to open the valve and at the same time reciprocate the stem, whereupon the water, passing through the tube, will carry off the sediment, and said sediment will be scraped and agitated by the passage of the scrapers over the bottom of the boiler.

Elmer J. Lasher, inventor; Peter N. Vandenburg, assignee, Johnstown, N. Y. **Car Door and Nozzle.** Two patents.—The first invention relates to that class of doors in which is employed, beside the usual main or sliding door, a supplemental or grain door. In the present case, this grain door is adapted to be connected directly to the sliding door when not wanted for use, so that it is entirely out of the way and is movable with said door. When placed in position, however, it is projected from the main door and secured by novel locking means. The actuating mechanism for this locking means is carried by the main door and is detachable from the grain door, so that the latter can be moved independently of the former. The said actuating mechanism constitutes means, however, whereby the main door can also be locked.

The second patent covers a nozzle-directing device, whereby the nozzle of a fire-hose may be changed without the necessity of the operator altering his position. Secured to the hose pipe, directly in rear of the nozzle, is a frame comprising hinged connected sections, and to the front section is swiveled, by means of a ball-and-socket joint, a stem having threaded engagement with the other section. A hand wheel is secured to the stem, and is disposed directly adjacent to suitable handles located on the rear section of the frame. Firemen, directing the nozzle, grasp the handle, and by screwing the stem, the hose can be readily bent so as to alter the position of the nozzle as desired.

Willard D. Baker, Rogers, Ark. **Safety Cushion for Elevators.**—The inventor, in this instance, designs to place at the foot of an elevator shaft, means which will gently arrest the car should it suddenly drop from any cause, as for instance, by the breaking of the hoisting cable. Four standards are employed, tubular in form, and between these standards is located a platform having cross beams that extend into said standards. Beneath the ends of the beams and housed within the standards are

spring sections, spaced apart by disks and being consecutively heavier and less resilient. Ratchet devices carried by the platform are arranged to engage racks upon the standards, to prevent the rebound of the platform when pressed downwardly against the tension of the springs and under the action of the car. As a result a gradually increasing resistance to the descent of the car is provided, which gently destroys its momentum and brings it to a state of rest without any sudden shock and without a rebounding action.

Henry J. Heider, Carroll, Iowa. **Draft Equalizer.** Two patents.—Both of these inventions relate more particularly to draft equalizers for use in connection with agricultural implements, especially plows, one of the objects being to provide a structure in which a greater number of horses may be hitched on one side than on the other so that they may travel on unplowed ground, leaving but a single animal in the furrow. In the original structure, a substantially A-shaped frame is employed adapted to be adjustably secured to the clevis, and in front of the same is located a draft bar connected to the frame by angularly disposed links. On the ends of this draft bar are pivoted whiffletrees to which are attached the usual singletrees. The draft bar has its center located at one side of the frame, and consequently at one side of the center of the plow or other implement.

The second patent covers a modification of this arrangement, the A-shaped frame still being employed as is also the evener bar and the link connections. In this form however, a doubletree is located at the longer end of the evener bar and a lever is pivoted on the other end. To one end of this lever is attached a whiffletree, while on the other end is located a doubletree. This arrangement provides a five-horse evener, which can be readily reduced to a three-horse evener of novel construction.

Otto F. Feix, Gloversville, N. Y., Two patents.—The first of these patents discloses an exceedingly ingenious hide fleshing machine. The removal of the fleshy particles from the inner sides of hides is usually accomplished by pressing the hide in a wet condition against the surface of a rapidly revolving emery wheel. This is an exceedingly delicate operation, because great care must be taken to prevent burning or other injury of the hide. Ordinarily, a skilled operator presses the hide against the wheel by hand, and uses just sufficient pressure to accomplish the desired result. The Feix machine embodies the emery wheel and a mechanically operated pressing member of yielding material, which exerts a yielding pressure similar to that of the hand and moves over the surface of the emery wheel in a manner which closely imitates the hand stroke of the skilled operator. The mechanism is so arranged that the pressing element may have either a single or a double stroke according to the weight or toughness of the hide, and provision is made for great nicety of adjustment to secure just that compression which is best adapted to the successful treatment of the particular hide operated upon. In addition to these features, the machine is provided with means for automatically truing and cleaning the emery wheel during its operation, and also with simple and effective mechanism for holding the hide in a taut or stretched condition while being operated upon.

The other patent discloses a novel process for the production of castor leather. This process is designed to produce a better grade of leather with a material reduction of cost, by minimizing the time required for liming, eliminating the manual cutting as in frizzing and scutting, and by substituting in lieu of such manipulation, the mechanical abrasion of the grain

side of the hide in a manner precluding the possibility of the enlargement of holes therein or the development of weak or tender spots. The method consists in soaking the hide in a lime solution for a period of fourteen days, de-hairing and fleshing the hide, breaking the grain by abrasion while the hide is in a wet state, partially tanning the hide, removing the grain by abrasion while the hide is in an approximately dry condition, completing the tanning of the hide, and finally finishing the same.

Charles H. Arft, inventor; Hemlock, Mich., William M. Fred Lang, Saginaw, Mich., assignee. **Beet Topper.**—In view of the rapid development of the beet sugar industry, this invention is particularly interesting at the present time. The patent discloses an extremely simple, but very ingenious machine, by means of which a large number of beets can be topped in a very short space of time with the aid of an unskilled operator. The beets are supported upon a platform, and are fed to a topping knife by an endless conveyor which is so constructed that the beets will be retained in proper position during their passage to the knife. The topped beets are carried back and deposited in a suitable receptacle. The machine may be operated either by hand or power, and is so constructed that it may be readily transported from one place of use to another.

Robert Carlton, Jonesboro, Ark. **Ellipsograph.** Two patents.—The patent for the earlier invention covers a simple and readily understood instrument, which will accurately describe an ellipse, and can be adjusted to make them of different sizes and with various relative axes. The invention is especially useful in making picture mats and trimming photographs, though it is capable of use for other purposes. An overhanging supporting arm is suitably mounted on a table, and in the same is journaled an upright shaft having a knob at its upper end and a crank arm at its lower end. In line with the overhanging arm is located a guide, in which is slidably mounted a reciprocating member pivotally connected to the guide and to the crank arm, and adjustable upon the latter is a pitman having a longitudinally disposed slot. Adjustable along this pitman is a pencil or knife holder, the knife or pencil of which passes through the slot. The paper placed beneath this pitman on the table can be marked or cut into the form of an ellipse by placing the pencil or knife at the desired position, adjusting the pitman upon the crank arm, and rotating the shaft, whereupon the pencil or knife will describe an ellipse.

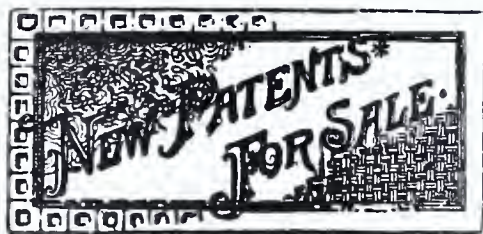
The other Carlton patent discloses a mat cutting machine which can be readily adjusted for the cutting of circles, ellipses, or ovals of various sizes. All of the operating parts of the machine are mounted on a support in the form of an elevated arm having hinged connection at one end with a rigid base, the opposite end of the arm being spaced from the table or other mat support so that the paper may be readily slipped into place. The entire structure is capable of swinging back to a vertical position over the base when the machine is not in use. The mechanism mounted on the arm or support includes a rotary and laterally movable handle shaft equipped with a suitable operating handle, a second shaft which may be adjusted so as to be either concentric or eccentric with the handle shaft, a tool carrying bar extending laterally from the second shaft, a shifter connected to the second shaft and controlling its lateral movement, arms swinging from independent centers and connected to the shifter to confine the movement thereof, and means for variously mounting the swinging arms in accordance with the character of the figure to be cut.

George J. Crossland, Mobile, Ala. **Switch.**—This invention relates to railway switches particularly designed for electric traction roads. The object is to provide novel means whereby the switch may be operated from the car. A pair of oppositely arranged magnets are suitably housed between the tracks at the switch, and have independent armatures connected by a common stem with the switch stub. The magnets are in electrical circuit with the rails or other conductors, and also have connection with contact plates arranged between the tracks some little distance away from the switch. Located on the car are other contact devices of a novel character, having actuating means disposed in convenient relation to the motorman. Thus, when it is desired to switch an approaching car, the motorman has only to operate certain of the contact devices, thereby closing the circuit and effecting the operation of the switch. The arrangement may, perhaps, be also employed for the mechanical instead of the electrical actuation of switches of this character.

William M. Reese, Caledonia, Miss. **Music Chart.**—The invention relates to an exceedingly ingenious device whereby a person entirely unacquainted with the piano or organ may readily ascertain and learn all the chords. A base or support is employed which is adapted to rest upon the keyboard, and is held in place by a depending flange that fits behind the black keys. This support has a longitudinally disposed guideway in which is located a slot, and above and below the guideway are arranged different key finder scales. Plates or strips are arranged to be detachably fitted in the guideway and slide longitudinally therein, being provided with oppositely extending knobs, the rear-most of which is arranged to be detachably engaged in the slot and hold the strips in place, while the outstanding knobs constitute actuating means for the strip. By this means the strips may be changed and reversed, being provided with chord indicators on their opposite sides. These indicators are so formed and indicated that they may be readily understood by a person, whether acquainted with music or not.

Madison B. Reese, Presley, La., inventor; Henry B. Murphy, Napoleon, Mississippi, assignee, one-half interest. **Adjustable Buggy Top Brace.**—This patent covers a simple, inexpensive and efficient device of great strength and durability, adapted to be readily applied to any ordinary buggy top, and capable of stiffening and strengthening the brace or prop, and of retaining the hinged sections thereof at different angles to each other, whereby the buggy top may be raised and held at any adjustment. The device is adapted to be substituted for the ordinary joint of a buggy top brace or prop, should the same become broken, and it will render the brace or prop as good as new. The device is composed of two members hinged together, one of the sections being provided with a curved series of teeth, and the other section carrying a locking device or member for engaging the teeth.

Alexander T. Taylor, Sutton, W. Va. **Combined Mud Guard and Luggage Carrier.**—The device is clearly applicable to practically any form of bicycle, and consists of two distinct elements or members, one a mud guard which can be easily attached to the frame of the machine, the other a receptacle or carrier arranged to be placed upon, and supported by, the mud guard. The securing mechanism for these elements is so arranged that they cannot slip about or disagreeably rattle, and either device may be employed independently of the other.



Advertisements inserted in this column for 15 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—Patent No. 774,256, dated Nov. 8, 1904. Dumping Grass Collector. Address, Joseph H. Hirt, K. F. D. No. 2 Bucyrus, Kan. my

FOR SALE—Patent No. 772,293, dated Oct. 11, 1904. Adjustable Buggy-Top Brace. Will sell at a bargain for cash to divide the interests of owners. Address, W. M. Reese, Caladonia, Miss. my

FOR SALE—Patent No. 764,052. Match Lighting Attachment, patented July 5, 1904. This attachment is to be attached to lamps. Will sell cheap. For further information write to George C. Harrison, Elyria, Ohio. my

FOR SALE—Patent No. 772,528, dated Oct. 18, 1904. Horse-shoeing vise. Will sell exclusive right for cash. Nothing can equal it on the market. Address, J. Whittier, Washington, Kansas. my

FOR SALE—Latest adjustable book clasp and lock combined. Model to demonstrate. Will sell at a sacrifice. Address, D. K. Keele, No. 311 E. 31. Street, Plainfield, N. J. my

FOR SALE—Patent No. 780,824, dated Jan. 24, 1904. Automatic Telephone, together with Nos. 632,759 and 760,711, thoroughly tested and well insured; secret, simple, durable and reliable. Will sell outright or state rights. Address, James C. Slater, No. 3125 N. Newsted Avenue, St. Louis, Mo. my

FOR SALE or on royalty—Patent No. 775,590, dated Nov. 22, 1904. Ash sifter to connect with stove. Easy to manufacture. Big profit. Every household needs one. Will sell cheap for cash. Address, W. T. Whiteway, No. 225 Broadway, Cambridge, Mass. my

FOR SALE—U. S. Patent No. 776,722, dated Dec. 6, 1904. Combination window shade fixture, dies, fixtures and customers. Address, Brumbaugh & Walters, No. 555 Mich. Street, Elkhart, Indiana. my

FOR SALE or on royalty—Patent No. 777,943, dated Dec. 20, 1904. Accordion Plating Machine. Can be built for \$10. Other similar machines sell for \$250 to \$500. Address, Norman De Witta, 11 Jefferson St. Watertown, N. Y. my

FOR SALE—Patent No. 754,450, March 15, 1904; and No. 775,401, Nov. 22, 1904. For a new class of city maps, showing all traction lines individually without colors. For publishers and map engravers. Send for sample. Address, E. Heubach, Edison Park, Ill. my

FOR SALE—Patent No. 773,638, dated Nov. 1, 1904. Combination steel, wood, and concrete railroad tie. For copy of patent and information. Address, A. J. Harlow, inventor, or T. W. Welsh, roadmaster B. & O. S. W. R. R., Mitchell, Indiana. my

FOR SALE—Patent No. 764,021, dated July 5, 1904. Lubricator for oiling car journals while in motion. Will sell outright for cash or trade for land. Address, W. S. Kenaga, White Church, Mo. apr

FOR SALE—Patent No. 728,414, dated May 19, 1903. Belt Supporter. Will sell at sacrifice owing to inability to give attention to it. Address, G. T. Rhoads, 420 Central Avenue, Plainfield, N. J. apr

FOR SALE—Canadian Patent No. 79,055. Adjustable Window Screen. On account of failing health, I am selling. Is being manufactured in the United States with considerable success. Address, David E. Fleming, 1113 D Street, Santa Ana, California. apr

FOR SALE—Patent No. 775,064, dated Nov. 15, 1904. Automatic Railway Switch Adjuster. No more open switches where it is used. Will sell for cash or on royalty. Canadian patent also for sale. Address, W. T. Harris, Ellettsville, Indiana. apr

FOR SALE—Patents No. 605,385 & No. 637,704. Street Sweeper. Will throw all dust and refuse into a receptacle. Practically dustless in operation. Will sell outright or lease on royalty. Alvin Brown, Plainfield, Ill. apr

FOR SALE—Design Patent No. 37,215, dated Nov. 8, 1904. Window Radiator. Will sell outright for cash cheap, or will license under royalty. Address, Anthony J. Pieszak, 234 Lord Street, Dunkirk, N. Y. apr

FOR SALE or on royalty—Canadian Patent No. 41,462, dated May 3, 1904. Vehicle brake. Address, Spangler & Treloar, Radersburg, Montana. apr

FOR SALE—U. S. Patent No. 760,318, dated August 2, 1904. Hat Form Retainer. Make me an offer for my half interest. Address, E. B. Salisbury, Box 301, White Bear Lake, Minn. apr

FOR SALE—Rein Support. Prevents the horse from getting its tail over the reins; supports same when not in use; prevents their getting tangled, and serves many other purposes. Address, W. T. Jarboe, Winfield, Md. apr

FOR SALE—Patent No. 768,028. Spring Gun. Will give to some reliable manufacturer to manufacture on a royalty basis. Address, Robert Braum, Care of 207 Orchard Street, Elgin, Ill. mar

FOR SALE—Patent No. 763,340, dated June 21, 1904. Wire Winding Machine. Simple to construct, cheap to manufacture. Every farmer will buy one. Sell for cash or royalty. Send for drawings. Address, James S. Brandou, 508 East 10th Street, Cheyenne, Wyo. mar

FOR SALE—Patent No. 770,107, dated Sep. 20, 1904. Buggy Wrench. Will hold the tap and not grease the hands. Manufactured cheap, and a quick seller. Address, J. M. Carroll, Stockdale, Texas. mar

FOR SALE—Patent No. 771,378, dated October 4, 1904. Bag fastener for all kinds of grain bags. It also makes the best horse-tail holder on the market. Address, O. R. Luther, 11 Riggs Street, Ansonia, Conn. mar

FOR SALE—U. S. Patents No. 737,941, dated Sept. 1, 1903. Valve Cut Off for Tanks; and No. 769,550, dated Sept. 6, 1904. Supply and Service Tanks. Will sell cheap for cash. Send me an offer. Will lease on royalty. Address, P. J. Leithauser, Defiance, Ohio. jun

FOR SALE—U. S. Patent No. 770,418, dated September 20, 1904. Cultivator, planter and fertilizer distributor. Will lease on royalty or sell territory. Make me an offer. Address, James R. Brown, Moultrie, Ga. mar

FOR SALE, or on royalty.—Patent No. 761-514. Baby Walker. Can be manufactured and sold at a good profit. Every household should have one. Address, Benj. Leininger, Florence Avenue, East McKeesport, Pa. mar

FOR SALE—Patent No. 776,922, dated December 6, 1904. A new pump, windmill or hand power. Satisfaction guaranteed. Address, P. J. Leithauser, Clarendon, Tex. jun

FOR SALE—Patent No. 775,427, dated Nov. 22, 1904. Screw Holder and Driver. Simple and Practical. A great labor saving device. Address, C. Lusted, Sr., Lafayette, La. mar

FOR SALE—Canadian Patent No. 84,967, and U. S. Patent No. 717,911. Stone Cutting Machine. Price \$1,500. Address, Claude L. Payne, Box 147, Salem, Indiana. mar

FOR SALE—Invention with stamps, dies, and forming tools. Cheap to right parties. Write for sample and particulars. Address, C. M. McClune, Box 247, Galeton, Pa. mar

FOR SALE—Patent No. 767,833, dated August 16, 1904. Device for regulating electric current, as electric light gas or oil, operating door bells, clocks, annunciators, burglar alarms, signs, telephones. Will sell outright. Address, F. E. Phillips, Hyde Park, Mass. mar

FOR SALE—Patents No. 774,693, Steering Apparatus for Ships, issued Nov. 8, 1904; and No. 755,928, Heat Regulator, March 29, 1904. Address, John Peterson, Lake George, N. Y. dec 05

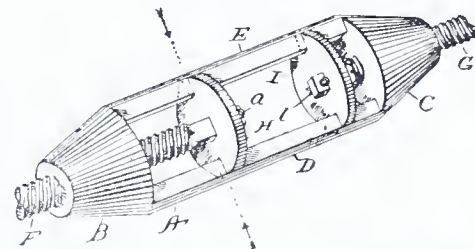
WANTED.

WANTED to place on royalty—Patent No. 776,690, dated Dec. 6, 1904. Banana Display Case. Wanted to place with reliable show case or store fixture manufacturing company. Not an experiment, but a SUCCESS. Address, D. D. Rush, Duluth, Minn. my

WANTED—A partner with business ability and some capital. I have several good inventions; also a house and lot. Partner wanted to put in machine shop to manufacture inventions. Am willing to give forty-five per cent of stock, and also pay back every dollar put in the business. Address, Oskar Melbye, Anacortes, Washington. apr

NOTICE TO MANUFACTURERS: I have a meat and vegetable chopper made of wood and metal. Have sold 200 from model in this city. On what terms can I get it manufactured? Address, Taylor M. Minor, Wabash, Ind. my

THE COWART SAFETY TURNBUCKLE.
Patented Feb. 16, 1904. Canada Protected.
FOR SALE.



Useful for car builders, steam shovels, ship builders and bridge builders. They will not work loose.

E. H. COWART,
PLEASANTON, CAL. jun.05

Magic Rheumatic Cure!

It absolutely does cure. It is not a cheap remedy but it is a cheap cure. Mark the distinction! There are a thousand remedies to one cure. This is A CURE. It costs \$2.00 a bottle, and is worth \$20.00 to any sufferer. Sold only by our authorized agents or direct of us. Send for circular. Agents wanted.

MAGIC CURE CO.

R. 313-315 Dearborn St.

Chicago.

A NEW BOOK FOR INVENTORS.

Patents and How to Make

Money out of Them.

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trademarks and copyrights. It also tells accurately How and What to Invent, How to sell Inventions, Place them on the Market, Interest Capital in them, and to successfully Promote a Stock Company. It also contains an index of forms worth double the price of the book, to any one interested.

ELEGANTLY CLOTH BOUND.

GOLD STAMPED. \$1.00 Postpaid.

Sent with one subscription to AGE for \$1.75.

Or will sell separately.

Address— **The Inventive Age Pub. Co.,**
918 F St., N. W. WASHINGTON, D. C.

Thousands

of inventions in the field of Railway and Engineering are being patented every year.

The Railway and Engineering Review

carries more advertisements of patent attorneys than any other railway paper in North America.

For rates, address—

The Railway and Engineering Review,
1305 Manhattan Building, Chicago.

Bee-Keepers

Should all subscribe to

THE AMERICAN BEE-KEEPER,

(Established 14 years.)

50 cents per year.)

The best magazine for beginners. We will send it **Six Months on Trial for 20 cents.** Sample copy free.

Address:

The American Bee-Keeper, Falconer, N.Y.

It is published by the

W. T. FALCONER, MFG. CO.

One of the oldest and largest makers of bee-keepers' supplies. Catalogue free.



Attention Inventors!

LISTS OF MANUFACTURERS FURNISHED.

We are prepared to furnish lists of manufacturers in any line of industry.

Charge one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: **INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.**

Every subscriber is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad will be inserted three times.

THE INVENTIVE AGE PUBLISHING Co., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

The Inventive Age

AND PATENT INDEX.

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 918 F Street, N. W.,

WASHINGTON, D. C.

The INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND A HALF.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

The INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 15 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,

WASHINGTON, D. C.

Entered at the Post-office as 2nd class matter.

WASHINGTON, MARCH, 1905.

SIDE LIGHTS ON NEW TRADE-MARK LAW.

How Some Attorneys Are Working Their Clients.

The new Federal trade-mark law, recently enacted by Congress, and fully explained in the February number of THE AGE, has, as was to be expected, brought out numerous circulars from attorneys, and probably every one who has had a trade-mark registered in the Patent Office, has been the recipient of one or more of them.

Some of the circulars contain correct and proper information; others are entirely erroneous. The most startling of the latter type that has yet appeared cannot be passed without comment, for the statements made therein are so utterly without foundation, that it brands the writer thereof either as grossly ignorant of the law and the real state of facts, and therefore, incompetent to prosecute the cases before the Patent Office; or as willfully misrepresenting such facts for the purpose of securing business.

The circular in question is as follows, and the full context is given in order to point out fully the glaring inaccuracies thereof.

"Dear Sir:—

The protection which it was supposed the registration of your Trade-Mark afforded under the old law has been invalidated by a recent decision of the Supreme Court.

A new Trade-Mark Law, which cures defects and supplies deficiencies of the old Trade Mark Law has been passed, and it will be necessary for the protection of your Trade-Mark in the United States to RE-REGISTER or patent it under the New Law.

The Government fee for RE-REGISTERING is \$10.00. Our fee for preparing new papers and drawings, prosecuting the case and securing RE-REGISTRATION is \$5.00. This FIFTEEN DOLLARS will cover the entire cost of RE-REGISTERING under the new law. On receipt of Fifteen Dollars (\$15.) we will proceed with the work and send you the Government Certificate that will be a patent to your Trade Mark and fully protect it for twenty years.

Yours truly,"

In the first place, the term "invalid-

ated" is either a coined word, the meaning of which is unknown to users of the English language, and therefore conveys to the sentence a hidden or enigmatical meaning, or else through carelessness, the word "invalidated" was misspelled. If the latter is the case, the opening sentence is misleading, to say the least. The Supreme Court has invalidated nothing in the line of protection to registered trade-marks. It has merely determined the extent of protection afforded under the law of 1881. That law is still in full force and effect, and the trade-marks registered thereunder are as much secured and protected thereby as they ever were. The repealing section (30) of the new law expressly excepts "certificates of registration issued under the Act of Congress approved March 3, 1881." The law has not been declared invalid, neither has the Court invalidated the same nor the protection afforded by it. Moreover, it is a new idea in legal lore for courts to *invalidate* any thing. They may decide or declare that a law is invalid, but in such case, it was no more valid before the decision than afterwards. They have no power to make a valid law invalid, any more than they have to make an invalid law valid.

It is true that the new trade-mark law cures defects and deficiencies of the old, but it is not true that it will be necessary for the protection of a trade-mark to re-register it. The protection of a trade-mark depends on no statutory law, and a party who has never registered his trade-mark can, by suitable proceedings, prevent the infringement thereof under the common law. This is expressly admitted in section 23 of the new act. The registering or re-registering under the new law is important, however, for certain articles of commerce, namely, those sold in more than one state, or among Indian tribes, or exported to foreign countries. Over these only, has the Congress any jurisdiction, and when such have been registered, the new law provides certain benefits and remedies against infringement not secured by the common law or by the Federal Statute of 1881.

The climax of the circular appears in the statement that it becomes "necessary for the protection of your trade-mark in the United States to re-register or patent it under the New Law" *Patent a Trademark!!* Shades of John Marshall!!! Patents and trade-marks are subjects absolutely distinct and widely different. They have positively no connection with each other. Each is in a sphere by itself, and to any one knowing the first principles of patent and trademark laws, this is self-evident, let alone those who advertise to be "experts" in the profession. Yet the above-quoted statement appears beneath a letter head having the legend "Attorneys in Patent Causes." Such is an example of a type of alleged attorneys who bid for the work of prosecuting applications before the Patent Office.

And what is their bid? Fifteen Dollars, of which ten is the Government fee. The residue, five dollars, is the usual charge for preparing the drawings, and the remainder thereof is undoubtedly full value for the services rendered. Wonderfully cheap in price, undoubtedly, but perhaps it may prove wonderfully dear in after experience.

TRADE-MARK RIGHTS.

Statement by Arthur P. Greeley.

Arthur P. Greeley Esq., a member of the commission to revise the patent and trade-mark laws, lately drew the bill on which the recently enacted law is founded. Many circulars have been sent out to holders of trade-marks by shrewd attorneys who are using the new law as a pretext for the promotion of business. In a recent statement given to the press, and published in the New York *Evening Post* and other papers, Mr. Greeley said:

"I feel a sort of fatherly interest in the new trade-mark law, and do not wish to see people cheated by reason of it.

"The worst circular that I have seen reads as follows: 'Under present laws all protection in the United States is withdrawn from trade-marks registered in the United States Patent Office by a decision of the United States Supreme Court. The new law takes effect April 1, 1905. Re-registration is necessary to protection.'

"It is absolutely untrue that the Supreme Court has withdrawn protection from trade-marks, and the whole intent of the circular is misleading. The new law was intended for the registration of trade-marks which had not been heretofore registrable. It was never contemplated that it should require re-registration of marks already registered, nor does the law in any sense compel this. It does give a little more value to registration than under the old law, and so there is no objection to any one's re-registering under the new law: but in no sense is this necessary so far as the protection of any existing rights are concerned.

"The owners of trade-marks always have had—irrespective of registration—right to the ownership of the marks that they adopted and used. This is a common-law right. The courts have in many instances issued injunctions, and decreed damages against infringers of the trade-marks, irrespective of any question of registration. All those rights exist, just as they did before this act was passed. The circulars which have gone out are frightening so many people that I believe a word of caution to quiet this needless apprehension would do good."

STEEL-FRAME CONSTRUCTION IN GERMANY.

A curious instance of the conservatism of the Old World is given in a report from our Consul General at Berlin. The present building laws, it appears, do not permit the construction, in the capital of Germany, of buildings over 72 feet high. Certain business men wish to erect steel frame houses of higher altitude, and have petitioned the Department of the Interior for permission, setting forth that the rapid growth of the city's population required more room than could be obtained within the limit of four stories, without excessive lateral expansion, the city being already spread over an immense area. They also urged that experience in other countries had shown high steel buildings, when properly constructed, to be

safe, comfortable, and sanitary. The petition was summarily refused, and in view of the general employment of sky scrapers in this country, the reasons given for refusal are interesting.

The Minister of the Interior declared, in effect, that it was impossible to occupy such buildings and retain moral and physical safety. He was opposed to a system of apartment houses which would cause a great number of persons of both sexes and of all ages to be huddled under conditions which are necessarily subversive of normal family life and prejudicial to public morals. Further, such buildings would be beyond the level of the water supply, and could not be made clean and sanitary; and finally, they would be beyond the protection of the fire department. No account seems to have been taken of the vindication of this style of construction in the Baltimore fire, where the steel frame buildings—offering least food for the flames—were left standing like monuments amid the wide waste of ruins of four and five story blocks built of stone and brick. But apart from the resistance to conflagration, it will come with a shock of surprise to the thousands of Americans who live in lofty apartment houses, to learn that their health and their morals are compromised by this style of residence.

CAN PATENT SOLICITING AND PATENT SELLING BE COMBINED?

There is crookedness in every profession or occupation. Among the physicians there is the quack; among the lawyers there is the pettifogger or shark; but as to patent attorneys, the vocabulary seems to be exhausted in properly characterizing the methods of some attorneys who solicit business.

It has become the practice of certain attorneys to offer to sell the patents obtained through their offices, well knowing that they possess neither the ability nor the facilities for making such sales.

The business of combining patent soliciting and selling was thus commented upon in the decision of Mr. Commission Butterworth, in the celebrated case of John Wedderburn:

"The propriety of an attorney or solicitor of patents combining the business of soliciting with that of selling patents is questionable. Doubtless it may be done honestly, but propositions for undertaking the sale of inventions which require the payment of a fee in cash in advance, are justly condemned."

An attorney who will throw out a bait to get clients by offering to sell the patents obtained through his office, will not make a faithful representative of the inventor. He is not honest in making the offer, because he will not spend a moment of his time in endeavoring to sell the patent after it has been issued, and the fact is that all that he is after is the fee for procuring the patent. Simulating the action of the fisherman who casts a fly to catch a fish, so the attorney catches the inventor by his offer to sell the patent after it is procured; the inventor finding in the end that he has not only been deceived by his attorney in said offer, but that the services rend-

ered by the attorney have been incompetent, and the patent procured of no value on account thereof.

There is also a class of attorneys who consider it a part of wisdom to inflame the inventor's mind as to the great value of patents, and in glaring advertisements, refer to the "great money in patents," as though the mere issuance of a patent was in itself the passport to a fortune. If the truth were told, it would be made clear to the inventor that the issuance of a patent is only a step in that direction, which may or may not lead to some degree of competence; that everything depends on the nature of the invention, the scope of the patent, and the use of capital to place it on the market. It has been well stated that patents frequently cause inventors to lose money, and this should be clearly understood. Because of the advertisements of certain attorneys, inventors have, in many instances, an absurd idea to the value of their patents. We know of a case where an inventor wanted \$50,000 for a patent on a gate, the claims of which patent were so restricted as to afford little or no protection to the patentee. If, in the particular instance referred to, the inventor should receive \$500 for his patent instead of \$50,000, he would be amply rewarded.

Ore Roasting Process.

An account of a new method of roasting or calcining ores or other minerals comes from Sweden. The crushed ore or mineral is continuously fed into a drum fixed horizontally, which rotates at such speed that the powder stratum nearest the wall of the drum, which, because of gravitation, centrifugal force, and friction, is following the rotation of the drum, when it reaches or approaches the highest point of the drum, falls down through it in a transverse direction while a current of air or gas is passing through the drum lengthwise. The process is said to give satisfactory results.

Motor Car Savings Banks.

A novelty in the line of savings banks is reported by one of our consuls in France. A motor car makes journeys around the country, stopping in villages on stated days to receive such sums as thrifty country people, having saved, may be desirous of depositing in a savings bank. The motor car, which is electrically driven, carries a small safe, a desk with folding shelves for the depositors, with accommodations for two clerks and a cashier and a seat for the driver.

New Hotel Equipments.

A new idea in hotel equipment is known as the crematory. This serves to convert into ashes all the empty boxes, papers and garbage, thus obviating all evil odors, as well as the early morning noises attendant upon the removal of garbage cans from large hotels. Another novelty consists of brine pipes that circulate throughout the building so that instead of the old time ice water pitchers, the guests receive frozen distilled water in carafes.

New Method of Hardening Iron.

Ferdinand L. Ramon, of San Francisco, Cal., has assigned to Percy D. Bailey, of the same place, a one-half interest in a patent recently granted to him on a process of hardening iron. The invention has for its object the production of a mixed metal superior to steel as regards weight, strength, toughness, etc. An alloy of iron and aluminium is formed by placing the metals in a crucible, heating them to white heat, and then placing on the metals a small quantity of sulfur. The metals are then reduced to a molten state by the application of additional heat so as to be ready for pouring for the formation of the finished product.

Potatoes from Radishes.

English newspapers are giving interesting details of a process, whereby radishes are transformed into potatoes. The process is the invention of a Frenchman, Monsieur Molliard, of Paris. He takes a very young radish and cultivates it in a glass retort, after a process invented by Pasteur, in a concentrated solution of glucose. Starch then develops plentifully in the cells of the radish, which swells out, loses its pepperiness, and acquires practically the consistency, flavor, and especially the nutritive properties of the potato. It is not claimed that the latter vegetable will be at once superseded, or yet that it will be cheaper to change radishes into potatoes than to cultivate the latter in the ordinary way. But M. Molliard's discovery is regarded as one which may have far-reaching consequences.

Incandescent Lamp.

An incandescent lamp, having straight filaments, and comprising certain improvements for taking up the slack of the filament as it expands or contracts during heating or cooling, is the subject matter of a patent recently granted to Almon D. Page, of Newark, N. J.

In the embodiment of the invention, the exhausted envelop of the lamp consists of a straight glass tube. In this tube is located a straight filament of any suitable material, which is electrically connected to leading-in conductors, located, respectively, at opposite ends of the tube. The upper end of the filament is connected directly to one of the leading-in conductors, while the lower end of the filament is electrically connected, through a flexible coiled conductor, to the lower leading-in conductor. The respective leading-in conductors are connected to suitable terminals on the outside of the lamp. The lamp is intended to be used in a vertical position, and Mr. Page has taken advantage of this fact to maintain the filament taut by securing to the lower end thereof a weight, which may consist of a glass ball. This ball is located within a small tube, the walls of which constitute a guide for the ball or weight, and prevent the latter from being displaced. The upper end of the tube is closed in, so as to confine the ball, but this turning in is only partial, so that an opening is left for the passage of the lower end of the filament.

Machines of Modern Warfare.

It is curious to note that in spite of the present trend toward arbitration, all the first-class nations of the world are unrelaxing in their efforts to enlarge their armaments. This is the age of immense navies and huge armies, equipped with the most improved machinery of warfare; and there is not one first-rate power which does not intend to increase its naval armament in the next decade or two. National jealousy compels many a country to enlarge the number of its warships. Our own naval establishment ranks high in the list (although the ratio of increase provided for by the last Congress is not all that was hoped for by the Navy Department) and the country generally has been quite willing to spend the hundreds of millions of dollars involved in its construction and maintenance. But our reliance in case of international differences is not alone upon battleships, protected cruisers and torpedo boats. Although the systematic fortification of our sea-coasts was not begun until about ten years ago, American military experts are convinced that, so far as the defensive works that are completed, the United States is better equipped for resisting a foreign invader than any other nation in the world. Besides the most perfect organization, the most modern types of fortifications, disappearing and rapid fire guns and submarine apparatus, the most effective explosives and the most complete system for ascertaining, plotting and communicating the exact position and range of approaching vessels, there is one important feature in our fixed armament that is absolutely unique, no other country having yet been far-sighted enough to adopt it.

This is the coast defense mortar which is mounted in a peculiar kind of fortification known as a mortar pit, consisting of a circular pit lined with a cement wall, and banked up with earth so as to form an immense mound. In some cases, the concrete is 20 or 30 feet thick and the embankment may extend to a distance of more than a hundred feet on the most exposed side. The entrance is hidden behind a clump of bushes, or in some other way, and within the earthworks, on the least exposed side, there are cement-lined passages giving access to the magazine rooms and the telephone booth, where communication is maintained with the observation station—usually some distance away. All the apartments are subterranean and have thick cement walls. There are from 2 to 4 mortar pits in a battery.

While field mortars have shown their efficiency in military operations in various parts of the world, the coast defense mortars have never yet been thoroughly tested in actual warfare. The gun, proper, is a cannon used for firing directly at the hostile forces, but the mortar throws its projectiles in such a manner that they will descend upon the enemy from above. It constitutes a kind of aerial mine, dropping large quantities of explosives from above. Submarine mines are liable to injure the fleet

with which they are intended to cooperate, as has so often happened in the war in the Far East. The mortar, on the contrary, is sure, safe and effective. It is beyond the enemy's reach, and cannot be dislodged by the guns from a fleet, as the position it occupies cannot be located and the pit is impregnable to direct fire. In target practice, a mortar has attained an accuracy, of 30 per cent of hits at a range of over 7,000 yards, with the object moving obliquely across the line of fire at a speed of 10 miles an hour.

The gun itself has a caliber of 12 inches, and weighs 15 tons. Four shots can be fired in six minutes, with a muzzle velocity of 1325 feet per second and capable of penetrating solid steel to a depth of 9 inches at a distance of 2 miles.

The muzzle is loaded while in a horizontal position, but in order to be fired it must be given an elevation of 45 degrees. When desired, any higher elevation may be given to it, up to 65 degrees. At no time is there the slightest exposure of men or mortar to the enemy's observation or fire. The piece is aimed according to instructions from the commander of the "firing district," the gunner ascertaining the horizontal direction needed by means of a graded azimuth circle surrounding the edge of the movable platform to which the carriage is attached; while the gun commander makes with a quadrant the observations necessary for determining the required elevation.

For a range of from 4 to 7 miles, a projectile weighing 800 pounds is used; for lesser ranges, one of 1,000 pounds. The projectiles comprise shell piercing shots, deck-piercing shells, and torpedo shells, which have a very thin crust and contain a large quantity of moxidite, and are designed especially for destroying the men on the decks of the enemy's ships.

Besides these aerial mines, which literally enable Uncle Sam to get the drop on his foes, naval engineers are much interested in a new style of warship invented by Anson Phelps Stokes, which consists of a floating battery resembling an inverted bowl. This novel vessel is meant especially for coast defense and the plan, as described by the inventor, comprises an immense floating battery, semi-gobular in shape, surmounted by gun turrets and conning towers. Its diameter at the base will be 180 feet; the height from the base of the battery to the top of the armored portion of the smokestack 90 feet, and the draught with full load, 36 feet. Its displacement at 26 feet draught would be 25,000 tons.

A system of elevating the great guns by shifting the centre of gravity of the whole vessel by means of movable ballast permits the use of much larger and longer guns, with stronger chases, longer chambers, and proper muzzle swell and without gun carriages, than battleships are able to carry. The vessel may be revolved horizontally, which will do away with the need of turrets and barbettes for these larger guns. The inventor believes that 16 inch or even larger guns could be carried and used effectively on a vessel built on this model. Mr. Stokes has given his new ship the name of Cerberus, and he claims that it would be impregnable for coast defense, and at the same time a powerful battleship, able to go a long distance under her own power.

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the INVENTIVE AGE, which publishes a list of all patents issued each month. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy; twenty copies \$1.50.—Please give correct data in ordering.—Address,

THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

Issued January 24, 1905.

MECHANICAL PATENTS.

Continued from February number.

Sawage. Crosscut.....E. L. Weaver
Sawmill head blocks. Log setting mechanism for.....J. C. Kistler
Saw table.....C. Seymour
Saw tooth gage.....W. Lewis
Saw tooth. Insertible.....C. H. Fox
Scaffold.....O. Schwerin
Scissors.....G. A. Reitz
Scuttle.....J. Formes
Seal. Bottle.....E. D. Schmitt
Sealing wrench. Jar.....L. D. Burlingham
Seed huller. Cotton.....M. W. Faherty
Seed separator.....J. M. King
Separator.....A. M. C. Sneider
Sewed articles. Seam for.....D. Noble
Sewing machine folding guide.....D. Noble
Sewing machine frame.....T. H. White
Sewing machine loop taker driver.....D. Noble
Shade and curtain hanger. Combined.....T. J. Edwards
Shade mounting. Window.....H. Dittenheimer et al
Sheet metal wheel or pulley.....A. E. Brion
Shingle gage and holder.....H. C. Adams
Shoulder brace and support.....A. Stinton
Shuttle binder.....S. Taylor et al
Sifter. Flour.....O. G. & O. K. Cole
Skirt lifter.....E. E. Wittkopp
Slicer. Potato.....H. Hanson
Sound box.....A. Keller
Speed changing mechanism.....W. W. Earl
Speed regulator. Centrifugal.....R. H. Lewis
Spoon.....F. E. Bontelle
Spoon.....H. H. Curtis
Spraying mechanism.....W. T. Yard
Stacker. Hay.....H. J. Luders
Station signal.....J. L. Wienn
Steam generator.....E. C. Newcomb
Steel segments, beams, &c. Grapping device for handling.....E. W. Morr
Stool. Extension piano. 2 pats. W. T. Brown
Stopping and releasing mechanism.....J. C. Slater
Store front. Disappearing.....F. L. Stone
Street sweeping machine.....B. K. Krapf
Striking bag platform.....E. K. Davis
Stump puller.....R. P. Chambers
Swing.....H. H. De France et al
Switch operating device.....T. J. Callahan
Switch stand.....F. C. Anderson
Syringe nozzle.....H. Dickinson
Tackle block.....A. V. H. Monro
Tampers.....J. W. Morgan
Target. Registering.....J. Michel
Target trap carrier.....F. Hardy
Telegraph receiver. Printing.....J. M. Joy
Telegraph receivers. Operating printing.....J. M. Joy
Telephone dial.....C. D. Reeve
Telephone plants with central battery. Signaling system in.....A. Ekstrom
Telephone switchboard.....F. R. McBerty
Telephone system. Central supply W. Dean
Theater safety system.....G. Weiss et al
Time recorder.....D. Hepp
Tire. Pneumatic.....W. J. & J. R. Mitchell
Tire upsetter.....J. I. Depew
Toilet comb.....N. Thomas
Torpedo placer. Magazine.....J. P. Clark
Towel rack.....A. H. Heath
Toy.....J. A. Moore
Trap, filter, and air distributor. Combined.....J. Posch
Trolley. Electric railway.....R. R. Weeks
Trolley wire finder.....J. P. Reed
Truck. Barrel.....C. J. Colling
Truck. Car.....C. H. Howard
Truck pedestal. Car.....H. M. Pfleger et al
Truck. Piano.....W. H. Griffith
Trunk strap.....R. J. Barrett
Trunk tray, &c. fastener.....H. Higgin
Trunk trays, &c. Means for fastening articles to.....E. P. Wilkins
Tubing ring.....E. D. Buzard
Turbine. Reversible.....L. Gelbrecht
Turbine. Steam.....H. F. Fullagar
Turbine. Steam.....C. A. Parsons et al
Twine holder.....E. O. Bulman
Type, &c. Cutting machine for rubber.....B. F. Kern et al
Type writing machine.....J. Felbel
Umbrella. Folding.....T. & R. L. Susemihl
Valve. Back pressure relief C. A. Cunningham
Valve. Check.....M. McLain
Valve. Electrically operated.....O. Junggren
Valve for oil presses or other machinery. Accumulator.....W. D. Nash
Valve for traps. Back pressure.....W. R. Bonnell
Vehicle body. Motor.....N. T. Harrington
Vehicle brake.....A. J. Jacobs
Vehicle. Motor.....H. E. Kellogg et al
Vehicle speed changing, driving, and reversing device. Motor.....D. E. Barnard
Vehicle wheel.....N. A. Newton
Vending machine.....P. E. Beaudry
Vending machine and fraud preventing device for same. Coin controlled.....A. D. Grover
Vending machine. Beverage.....J. W. Ford
Vending machine. Coin controlled M. Warnke
Wagon brake shoe.....C. Deckard
Wall construction.....W. H. Fisher
Wall hook.....5 pats.....F. C. Palmer
Wall. Sectional.....J. A. Carter
Washing machine tub.....J. C. Peters
Washub attachment.....W. A. Dunlap
Watch dial fastener.....H. S. & J. R. Bookwalter
Watch fob attaching device.....S. J. Perry
Water by means of steam. Apparatus for heating and circulating.....A. H. Barker

Watch fob attaching device.....S. J. Perry
Water heater.....A. H. Humphrey
Water heater.....E. S. Stack
Water trap.....C. F. L. McQuiston
Webs. Method of and apparatus for applying solutions or fluids to traveling.....R. Aron
Well piston. Oil.....G. A. Miller
Whiffletree hook.....C. J. Edwards
Winding mechanism tension regulator.....C. F. Obermaier
Windmills. Automatically lubricated pitman for.....W. P. Brett
Window.....F. Felkel et al
Window. Casement.....I. Wroblewski
Window. Disappearing.....J. J. Muller
Window frame and sash. Metallic P. A. Tracy
Wire fabric.....C. H. Thurston
Wire stretcher.....J. M. Shaw et al
Wire stretcher.....C. F. Stephens
Wire stretcher. Woven.....A. & C. A. Church
Wood holder.....C. B. Keferstein
Wood with sheet metal. Apparatus for incasing.....F. Dobson
Woodworking machine.....J. M. Nash
Wrench.....S. J. Clokey
Wrench.....J. F. Boller
Wrench.....R. C. Ehrlich
Yarn or thread. Machine for testing and recording the strength of.....J. B. Moscrop

DESIGNS.

Coffee pots, sugar bowls, or similar articles. Body for.....C. M. Perkins
Display receptacle.....L. C. Palmer
Hose rack.....H. Gibbs
Label.....G. D. Kinsey
Lamp.....W. Gray
Lavatory.....H. Podmore
Metal blade.....A. L. Remington
Mug or stein. 2 pats.....H. S. Maddock
Receptacle or vessel.....C. W. Meinecke

Issued January 31, 1905.

MECHANICAL PATENTS.

Acetylene for facilitating its transportation and storage. Treating.....E. A. Le Sueur
Adding device.....J. M. Chappell
Adding machine.....C. H. Williams
Advertising apparatus for railway carriages. Automatic.....J. B. von Seyffertitz
Agnating device.....W. B. Devereux
Air pressure regulator.....J. H. Chase
Alloys. Manufacture of metallic T. Prescott
Aluminum and sodium. Making the double sulfate of.....G. E. Hipp
Animal stock.....J. L. Pentecost
Automobile body.....E. R. Hewitt
Automobile control gear.....E. R. Hewitt
Awning.....W. J. Branch et al
Axle oil controller. Car.....A. A. Freeman
Baby carrier.....C. J. Sutter
Baby chair.....A. P. Perkins
Baling press power apparatus.....H. D. Smith
Ballot box.....L. F. & H. L. K. Biesemeyer
Banjo.....T. Williams
Bank. Savings.....J. B. King
Barrel rolling and centering device Z. T. Gopen
Beam presser.....H. Parsons
Bearing. Antifriction.....C. Opp
Bearing for cranks or other shafts.....E. Hollingworth
Bed and couch. Combined.....D. T. Owen
Bed. Invalid and operating.....E. B. Brown
Bed pan.....G. E. Gorham
Belt. Driving.....E. Morrison
Belt tightener.....G. L. Chatfield
Bench stop.....W. W. Brownell
Bicycle handle bar.....F. J. Calkins
Binder. Temporary.....L. T. Prudon
Binders. Tongue truck for.....A. Seitz
Binding clamp.....J. D. Haggard
Binding post. Spring.....W. P. Phillips
Blasting apparatus.....S. Rogers
Boards from logs of wood. Manufacture of.....N. G. Sorensen
Boat builder's riveting jack.....J. D. Morley
Boat. Folding.....L. S. Deal et al
Boiler furnace.....S. F. Pierce
Boiler furnace.....G. Wolf
Boilers, cylinders, &c. Means for securing heads to.....M. Sherman
Book. Manifold.....J. A. Duggan
Book stack.....F. O. Hanson
Book support.....E. Thomas
Bottle. Antifilling.....J. F. Dredge
Bottle cap.....G. Demacacos
Bottle closure.....H. S. Brewington
Bottle. Non refillable.....A. D. Cressler
Bottle. Non-refillable.....R. S. Wiesenfeld
Bottle. Non refillable.....F. L. Short
Bottle stopper. Non refillable T. H. Ivey et al
Bottling machine.....A. Schneider
Brake beam.....F. R. Cornwall
Brake beam fulcrum.....J. F. O'Connor
Brake mechanism.....P. M. Kling
Brake system. Fluid pressure.....G. M. Spencer et al
Brick conveyer.....W. P. Alsip
Brick. Fire.....F. A. Widdows
Bridge gate.....L. Simon et al
Brush. Fountain.....G. W. Wheeler
Brush. Mouth.....J. M. Murphree
Building block.....G. F. Fisher
Bunsen burner.....T. G. Palmer et al
Burner needing device.....A. E. Shaw
Cable laying implement.....W. C. Stevens
Calculating instrument.....H. A. Hensley
Calculating machine.....W. H. Robertson
Calculating machine.....G. E. Schuman
Calc.....F. F. Heiselmann
Camera focusing attachment C. W. Hartmann
Candy holder.....J. Jeffers, Jr
Cane carrier for sugar mills.....H. Froehlich
Cans. Machine for cutting off heads of old metal.....B. E. Fernow
Cans. Machine for cutting out side seams of old metal.....B. E. Fernow

Car bolster.....C. T. Westlake
Car brake.....H. H. Warner
Car coupling.....P. Brown
Car coupling.....J. Anson
Car. Dumping.....C. Barrett
Car. Dumping.....W. W. Wallace
Car dumping apparatus. Railway.....W. C. Culliton
Car hot water heater. Railway.....K. D. Hequembourg
Car loading device.....M. W. Randall
Car. Motor.....J. Wilkinson
Car. Railway.....T. E. Adams
Car. Sleeping.....D. S. McEwing
Car spragger.....B. Britton
Carbine hook.....S. Adler
Card producing and reading in apparatus. Jacquard.....C. Vorwerk
Carriage.....M. B. Gaines
Carriage. Child's convertible.....J. A. Craudall
Carton or box.....I. S. Morris
Cement block machine.....C. F. Harris et al
Chain.....E. Nolle
Chair.....W. D. Jones
Chair iron.....H. W. Bolens
Chairs, &c. Adjustable back for.....H. B. Osborne
Chalice.....T. C. T. Moller
Cigar perforator.....C. Blumer
Cigar pocket.....O. L. Parmenter
Clipper. Hair.....J. Sjastram
Clock. Graphophone.....C. W. Henrich
Clock. Self winding electric.....R. L. Light
Clothes line reel.....E. M. Powers et al
Clothes pin.....J. S. Banks
Clutch.....E. R. Hewitt
Clutch. Release power.....E. Huber
Coating metals.....H. Rodman
Cock. Stop and waste.....E. H. Donahue
Coin counting machine shell holder.....G. White
Coin counting machine stop.....G. White
Coke from cinders, &c. Electrical apparatus for separating.....H. Lelarge
Coke oven appliance.....H. Koppers
Collar fastener.....F. A. Klappau et al
Collar. Horse.....J. & E. Veltung
Concrete or the like mixing machine.....W. J. Judd
Concrete structure. Reinforced R. C. Newhouse
Controller interlocking device.....E. H. Dewson
Conveyer. Economical endless band.....H. H. G. Etcheverry
Conveyer. Portable endless.....W. L. McCabe
Conveying apparatus.....E. N. Trump
Cooking pan.....E. L. MacFate
Core box. Multiple.....J. Breen
Corn sifting machine.....J. P. Owens et al
Cotton chopper.....J. A. Butts
Cotton chopper and cultivator.....C. W. Crenshaw
Cotton plant and product thereof. Utilizing waste substances of the.....M. W. Marsden
Cover. Receptacle.....J. A. Lausberger
Cream of tartar. Making.....G. Ciapetti
Crib and settee. Combined.....A. E. Custer
Cultivator. Lister.....C. H. Melvin
Culvert, sewer, or other drain pipe.....W. J. Daggett
Curler. Hair.....G. C. Stanley
Curling iron.....M. V. Dawes et al
Currents. Apparatus for producing oscillatory.....P. C. Hewitt
Currents. Producing oscillatory P. C. Hewitt
Curtain pole.....A. T. Weithershausen
Curtain ring.....A. L. Parker
Cuspidor.....T. McClunie
Cyanids. Making.....J. Teherniac
Dampers apparatus. Time.....G. R. Young
Dental disk carrier.....O. B. Price
Dental disk package.....J. A. Thomas
Dental plate.....C. L. Buckwalter et al
Dental plate blank.....M. A. Coykendall
Dental use. Rubber disk for.....J. E. Blake
Despatch apparatus. Carrier stopping mechanism for.....C. M. Johnson
Die press.....A. W. & A. H. Roovers
Disinfectant mouthpiece holder.....W. K. Brackett
Display box.....G. H. & C. H. W. Cliff
Display mount.....A. P. Morse
Door check.....M. A. Quillin
Door check and closer. Pneumatic.....G. Rice
Door holding releasing, and opening device.....W. J. Haslam
Door operating mechanism.....R. Pitt et al
Door securer.....W. P. Dobson
Draft equalizer.....H. J. Heider
Draft mechanism.....P. Brown
Drafting instrument.....J. T. Leonard
Drawer or slide equalizer.....2 pats.....L. Senge
Drawer slide. Antifriction.....A. Dickey
Drawer support.....C. J. Perspers
Drying apparatus. Woven goods.....M. R. Jahr
Drilling machine. Portable.....W. F. Scott
Driving mechanism Variable.....C. C. & E. A. Riote
Dust removing apparatus.....D. T. Kenney
Egg beater.....W. T. Washington
Egg preserving case.....N. A. Wierman
Electric currents. Commutation of.....E. Thomson
Electric motor.....M. Koener
Electric motor.....B. Samuels
Electric time switch.....J. Heimstadter, Jr
Electric wire conduit.....S. Palmer
Electrical energy. Apparatus for transforming.....P. C. Hewitt
Electrical energy. Transforming.....P. C. Hewitt
Electrical variations. Means for amplifying.....P. C. Hewitt
Electromagnetic apparatus.....J. J. McIntyre
Electroplating tank.....J. G. Brothwell et al
Elevator hatch cover. Automatic.....T. Walker
Elevator safety appliance.....A. A. Roth
Elevator stop mechanism. Automatic.....D. H. Darrin
Embankment protection.....A. S. Coltharp
Embroidering machines. Take up hook for.....C. A. Gonzenbach

Engine coupling. Traction.....W. J. Finlay
Engine crank casing. Explosive E. R. Hewitt
Engine crank shaft.....E. R. Hewitt
Engine lubricating system. Explosive.....P. C. & E. R. Hewitt
Engine steering mechanism. Traction.....J. W. Wood
Engines or turbines driving alternators in parallel. Controlling the running of reciprocating.....C. A. Parsons et al
Envelop clasp.....J. A. Sherman
Envelop machine attachment.....E. M. Wilcox
Evaporating and distilling apparatus. Liquid.....B. F. Brooke-Sewell
Exhibition case.....J. R. Hice
Exhibitor. Bedstead.....C. L. Bustin
Expansion bolt.....E. A. Stulz
Eyeglasses, &c. Holder for lenses of.....3 pats.....G. H. Winslow
Fan. Mechanically operated.....F. Susek
Fare register operating rods. Bracket for.....J. F. Ohmer
Farm gate. Foldable.....2 pats.....F. O. Stuart
Farming appliance.....W. W. King
Fastening device.....A. M. Hanan
Fastening. Temporary.....G. P. Thomas
Faucet.....A. E. Isaacs
Featherbone corset or garment stiffeners. Manufacturing.....O. J. Weil
Feed water heater.....J. M. Dashiell
Feed water heater.....F. E. Keyes
Feed water heater and purifier.....T. O. Organ
Fence lock. Wire.....J. T. Collins
Fence post.....H. M. Kelly
Fence post.....H. C. Lower
Fence post wire fastener. Cement.....A. M. Snyder
Fence posts, &c. Mold for forming.....W. Gray
Fence posts. Molding flask for making.....H. A. Low
Fence. Wire.....J. Hewitt
Fence wires. Machine for attaching stays to.....R. C. Glassco
Fender support.....P. Best
Fibers for spinning. Machinery for the preparation of vegetable.....J. Good
File. Letter.....L. Sainberg
Film developing apparatus. Daylight roll.....J. M. Brainerd
Filter.....F. D. Palmer
Filter.....W. F. Stewart
Filter.....O. Loffler et al
Filter or strainer.....S. Weabe
Floor clamp.....A. R. Swett et al
Flower holder.....E. G. Gansley
Flue cleaner.....D. Witt
Folding chair.....H. F. Ryther
Fracture apparatus.....G. E. Gorham
Fruit jar.....G. H. Ricke
Fuel. Composition for artificial.....C. L. Dowell
Furnace.....M. J. Sullivan
Furnace.....S. P. Smith
Furnace.....L. S. Baker
Furnace attachment.....G. Wolf
Furnace charging apparatus.....E. W. Lindquist
Furnace charging apparatus. Blast.....T. McDonald
Fuse. Electric circuit safety.....C. Kramer
Garment fastener.....J. Kahlo
Garment gage and marker.....A. & R. Waterman
Garment hanger.....E. C. Whitney
Garment hanger.....J. Feith
Garment shape retainer.....G. W. Paige
Garment supporter.....S. C. Kellogg
Gas and coke from crude oil. Manufacturing.....J. C. H. Stut
Gas burner.....E. J. Kraetzer
Gas generating furnace.....J. H. Foster
Gas generator. Acetylene.....2 pats.....J. Bartlett
Gas. Manufacturing illuminating.....J. C. H. Stut
Gas seal furnace.....S. Peacock
Gate.....O. J. Chapin
Gate.....G. W. Sites
Gear. Adjustable.....G. M. Mills
Gear. Variable speed.....W. O. Brown
Gearing. Worm.....F. Hamacheck
Glass cutter.....T. Kinkade
Glass gathering and delivering machine.....G. A. Marsh
Glassware. Apparatus for the manufacture of.....G. A. Marsh
Glassware. Machine for making hollow.....G. A. Marsh
Glove.....W. B. Phillips
Governing mechanism.....L. F. Burger
Grading machine for cereals, &c.....F. Prinz
Grain bin alarm. Automatic.....H. L. Moebeck
Grain drill.....W. Fetzer
Grain drill pressure device.....J. W. Smith et al
Grain or fodder loader.....F. S. Pierce
Grinder. Sickle.....J. W. Myers
Grinding and drying apparatus. Combined.....J. A. Morrell
Grinding machine.....D. R. Bowen
Grinding machines. Automatic sizing mechanism for.....A. B. Landis
Grinding roll.....T. Woodrum
Gun. Automatic.....W. H. Driggs
Gun. Breech loading.....T. G. Bennett
Gun carriage or mount.....J. F. Meigs et al
Hair drying comb.....A. Wallace, Jr
Hair pins or the like. Manufacturing.....T. Roos
Hair rat.....B. E. & C. N. Stephens
Hammer. Pneumatic.....W. O. Duntley
Hammock stand. Folding.....J. Lawson
Hand hole covering.....A. C. Lynch
Harrow. Riding spring tooth.....C. S. Sharp
Harrow tooth holding device.....F. S. Sturges et al
Harvester reel.....H. B. Meranda
Hat.....C. B. Lau
Hat drier.....A. Catino
Hat fastener.....L. Veinder
Hat lining.....R. S. C. Fuller
Hat pin.....A. W. Griffith
Hat pin.....W. Tretbar
Hay rack. Wagon.....F. Heidbreder

Heater W. H. Denslow
 Heating apparatus J. D. York
 Heating apparatus, Steam W. Shurtleff
 Heel nailing machine H. A. Webster
 Hemp brake J. Burnam
 Hinge, Gate N. A. McPhail
 Hinge, Spring W. Johnson
 Hoe, Garden H. M. Cosey
 Hood H. A. Saks
 Horse detacher F. Quintano et al
 Horsehair, Preparing felted G. V. Castele, Fils
 Hub band D. W. Call
 Hub, Expanding vehicle J. L. O. King
 Hub, Wheel C. C. Brabant
 Hydraulic draw bench O. Heer
 Hydraulic elevator T. Larsson
 Ice tongs J. L. Baugley
 Inhaler, injector and medicator S. J. & L. A. Hutchins
 Insulating coils G. H. Rupley
 Internal combustion engine, Rotary T. Wright
 Ironing board S. J. Beckwith
 Jacquard machine T. A. B. Carver
 Jar closure J. S. Du Bois
 Key lock R. M. Revolt
 Knitting machine G. D. Whitcomb
 Labeling machine W. Edson
 Lace trimmings, Machine for making M. N. Aaron
 Lacing eye S. S. Gossard
 Lacing for shoes, &c W. F. Hall
 Ladle, Ciuder T. McDonald
 Lamp C. von Culm
 Lamp, Acetylene or other J. Bartlett
 Lamp guard, Incandescent C. C. Blake
 Lamp, Hydrocarbon incandescence G. Washington
 Lamp, Incandescent A. D. Page
 Lamp, Incandescent gas H. M. H. Delamarre
 Lamp socket, Electric M. Norden
 Lamp socket, Incandescent W. H. Perkins
 Lamp suspension device, Street A. Niemeyer
 Lamps, Apparatus and circuits for starting electric P. C. Hewitt
 Lamps, Radiation burner for spirit E. Boivin
 Latching machine A. Hebert
 Latch W. H. Dalrymple
 Latch and lock A. J. Campbell
 Latch and lock combined W. H. Dalrymple
 Ledger sheets or the like, Machine for creasing W. M. L. McAdams
 Letter and carbon holder R. J. Riley
 Lifting jack C. L. Correll
 Lifting jack F. I. Joyce
 Light, Producing P. C. Hewitt
 Lime slaking apparatus M. Sherman
 Limit or other gate, Adjustable T. Humpage
 Linoleum, Apparatus for making inlaid H. A. Staeding
 Linoleum, Making inlaid H. A. Staeding
 Liquid ripener 2 pats. A. Jensen
 Liquids under pressure, Apparatus for filling receptacles with M. Warren
 Load binding chains, Securing or releasing means for W. M. Cain
 Loading machine, Wagon E. A. Scott et al
 Lock A. O. Fossum
 Locking device W. H. Bloomer
 Logging apparatus, 2 pats. H. R. Robertson
 Loom picker T. G. Moser
 Loom shuttle guide, Narrow ware S. A. Widmer
 Lubricator W. H. & R. Thompson
 Lubricator H. Ritter
 Lubricator 2 pats. I. I. Aull
 Lume testing machine J. D. Wolf
 Manhole guard H. C. Baker
 Mantle support R. Momand
 Marble sawing machine J. F. Stierer
 Marking device, Goods W. H. Witty
 Match box holder, Safety E. A. Parker
 Match holder and striker E. A. Parker
 Match machine F. J. Miller
 Measuring appliance and compressor for liquids E. O. Linton
 Mechanic's clamp A. F. Peelman
 Medicaments containing plant juice, Making M. Ritter
 Megaphone T. Emery Jr. et al
 Metal bending machine J. N. Peavey
 Metal frame E. R. Hewitt
 Metallic tube, Flexible T. J. Carroll
 Mileage detacher J. Sharkey et al
 Milling machine G. Hutchinson
 Moistener, Envelop L. S. Duncan
 Moistening device T. F. Welch
 Mold for radiator or like sections D. M. Nesbit
 Molding machine G. H. Campbell
 Molding press C. H. Darling et al
 Mortising device R. O. Gudgen
 Motive cylinder W. Kennedy
 Motor regulating device, Explosion K. Reinhardt
 Movement cure device A. B. Schanz
 Mower, Lawn L. Brown
 Muffler E. Altman
 Music leaf turner E. P. Dorward
 Nut lock F. Fisher
 Nut lock G. O. Tucker
 Nut lock A. Schmidt
 Oil burner J. H. Davis
 Oil burner for bakers' oven S. T. Johnson
 Oils more limpid, Rendering asphaltic E. A. Starke
 Optical apparatus J. Sallee
 Optical instruments, Prism support for use with J. Schmuck
 Ore elevator, Automatic dumping D. R. McTaggart
 Ore separator, Electromagnetic F. Langguth
 Ore treating apparatus H. A. & H. A. Hogel
 Ores containing iron, Treating zinc sulfid C. E. Dawey
 Ores, Treating H. A. & H. A. Hogel
 Package for retailing tub butter, Pail-like M. C. Dingwall
 Packing, Piston O. Reynolds
 Packing, Rod J. Bryan et al
 Pail supporter, Milk A. Higgins
 Paint removing compound C. L. Beck
 Paper box H. Runtz
 Paper cutter J. Frazee
 Paper feeding machine E. Dummer
 Paper, &c, folding machine E. H. Cottrell
 Paste receptacle H. B. De Vore
 Pastry board F. Staassen
 Pencil C. von Schemnitzky
 Pencil holder W. Scharrath et al
 Penholder L. L. McCormick

Photo machine, Automatic A. J. Springer
 Photograph holder W. E. Hancock
 Photographer's dish or tray H. Fritzsche
 Photographic plate or film J. H. Smith
 Photographic shutter G. A. Pickard et al
 Piano action flange F. H. Wright
 Piano treadle, Antopneumatic F. Engelhardt et al
 Pipe bending means A. Frohlich
 Pipe, cable, &c, coupling A. Powell
 Planter, Potato J. R. Steitz
 Plow W. L. Paul
 Plow, Motor S. E. Kurtz
 Plumber's melting pot C. Dwyer
 Pocket, Garment W. P. Snyder
 Poke, Animal S. Hartman
 Polishing machine, Automatic B. C. Hemming
 Pot or vessel for cooking boned hams, &c W. A. Van Berkel
 Power, Producing motive F. Windhausen et al
 Power transmitting device, Variable speed A. B. Fowler
 Pressure tank A. Schneider
 Printing machine, Draftsman's 2 pats. A. J. Bradley
 Printing press F. Wesel
 Printing press deliverer C. G. Harris
 Pulp molding machine C. D. Ormiston
 Pulp separating and sieving apparatus Wood W. Ruth
 Pump 2 pats. S. N. Hall
 Pump H. H. Arkwright
 Pump rod lifter T. H. Tregellas
 Punch, Combination ticket W. C. Downing
 Punching bag, Coll controlled J. Schiemer
 Purse Safety S. H. Duncan
 Puzzle F. J. Curtis
 Puzzle S. Maas
 Radiator W. R. Kinnear
 Radiator regulating device A. C. Walworth, Jr
 Rail joint P. Epperson
 Rail joint E. J. Clark
 Rail joint A. L. Hodges
 Rail joint Grooved R. Ames
 Rail tie plate W. E. Miller
 Railway rail joint fish plate L. L. White
 Railway signaling system W. G. Roome
 Railway switch W. K. Smith
 Railway switch, Street L. B. Murray
 Railway system, Electric F. E. Kinsman
 Railway system, Gravity A. Abelson
 Railway tie C. W. Israel
 Railways, Underground or conduit system for electric W. Cope
 Ratchet wrench E. I. Morin
 Ratchet wrench I. W. Rugg
 Razor strap attachment J. S. Burk
 Receptacle holder, Detachable R. J. Riley
 Register W. S. Tuttle
 Regulator A. W. Francis
 Rein holder and checkrein, Combined C. H. Barrick et al
 Respirator and inhaler G. N. Guthrie, Jr
 Roadway and vehicle for traveling thereon T. A. Johnson
 Roadways, Forming or treating F. W. A. Loebell
 Rock drill W. C. Stephens
 Rope machine J. Good
 Rotary engine F. V. Smith et al
 Rotary engine W. M. Hoffman
 Rotary explosive engine J. W. Kales
 Rule, Draftsman's A. R. Willis
 Sandpaper holder J. K. Brown
 Sash bar, Ventilating F. Lyster
 Saw set J. Z. Herzing
 Sawing machine J. Anderson
 Screen J. Clements et al
 Scrubbing implement S. M. Elv
 Sealing device C. F. Haidt
 Sealing machine, Automatic vacuum can E. Norton et al
 Sewing machine feeding mechanism Z. T. French et al
 Sewing machine folding table V. W. Glover
 Sewing machine hemmer J. W. Eshelman
 Shaft carrier, Vehicle O. W. Randall
 Shaking out machine J. B. Hadaway
 Sharpening machine, Disk R. M. Hammond
 Shock or bundle loader E. Kirk
 Shocking machine E. A. Marx
 Shoe supporting bracket F. I. Sims
 Shoe sole rasp J. I. Knobs
 Shoulder and body brace with attachments, Combination T. E. McMurry
 Sifter and mortar mixer, Automatic sand P. B. & A. C. Quade
 Sign, Moving display T. B. Powers
 Signal J. D. Price
 Signal bells, Automatic code ringer for magnets L. B. Elliott
 Signal recording mechanism A. E. Colgate
 Signal system C. White
 Sliding and swinging gate H. C. Pratt
 Snow plow P. B. Brazel
 Soap in water, Emulsifying resin M. Erfurt
 Sound recording and reproducing machine E. R. Johnson
 Spoon holder A. E. Mildeberger
 Spring seating block C. A. Miller
 Sprinkler valve seating F. W. Reed
 Stairway, Traveling C. G. Rodack
 Salk cutter, Revolving C. Anders
 Stamp holder for pocket books, Postage H. Rachinski, Jr
 Starter making machine T. L. Valerius
 Steam trap J. F. Burns
 Steel trap O. S. Underwood
 Stereotype matrices, Machine for impressing or embossing and drying F. Schreiner
 Stop motion, Electrical U. G. Lee
 Stove, Gas W. M. Partridge
 Stove, Heating W. J. Smith
 Stovepipe holder F. M. Hall
 Strainer P. Evans
 Strainer, Revolving G. H. Mehner
 Street cleaner D. G. McClay
 Street receiver T. J. O'Brien
 Surgical bandage, Woven T. W. Haurath
 Syringe, Hypodermic power F. A. Higgins
 Tag holder E. West
 Talking machine horns, Means for detachably mounting H. Ensign
 Tank support P. P. Sturdevant
 Teeth to plates, Means for attaching artificial J. R. Wells
 Telegraph, Electric 3 pats. W. D. Gregory
 Telephone circuits from the action of electromagnetic waves, Protecting J. S. Stone

Telephone relay W. W. Jacques
 Telephone service, Rent collecting means for J. L. Peavcy
 Telephone system C. B. Smith
 Telephone transmitter sanitary attachment S. E. Williams
 Tent or tether peg T. Morris
 Theatrical display device S. De Vall
 Thermo electric couple, Uniting the two components of a A. Heil
 Thermo electric element, 3 pats. A. L. Marsh
 Ticket, Railway or transportation L. A. Callahan
 Time indicator J. Childs
 Timepiece P. C. Engle
 Tin oxid, Making H. Foersterling
 Tire grip tread, Rubber H. D. Weed
 Tire, Vehicle C. W. Faintone
 Tires, Device for closing the longitudinal slits in pneumatic R. J. Voss
 Tires, Making wheel A. de Laski
 Tobacco stripping machine J. W. Blundell et al
 Toilet and hat holding appliance W. L. Scott
 Tool, Electrical D. J. Hausset et al
 Tool, Pneumatic J. F. Tippet et al
 Tooth Artificial J. R. Haldeman
 Tooth crown holder C. W. Fahey
 Top lift C. C. Small
 Toy, Mechanical bird I. B. Slinn
 Toy, Optical M. Abramowitz
 Toy or puzzle L. B. Smith
 Track brake J. F. Orr
 Traction wheel 2 pats. M. J. Todd
 Transformer cut out J. P. Hetherington et al
 Transplanting implement R. D. Kline
 Tree rack or holder R. A. Riek
 Trolley G. J. Cook
 Trolley L. O. Pullen
 Trolley pole guard and finder W. P. Underhill
 Trolley pole support T. J. Cope
 Trousers hanger and stretcher G. H. Hazleton
 Truck B. Holmes
 Truck W. P. Hussey
 Truck W. J. Sterling
 Truck, Elevating A. Kobelt
 Truck Foldable S. Thompson
 Truck lock C. J. Salviole
 Tubing, Flexible S. Scognamiglio
 Tufting machine, Comforter or mattress P. J. Corne
 Turbine wheel construction R. H. Rice
 Turfing machine J. A. Bledsne
 Turnbuckle lock E. R. Hewitt
 Twyer making machine W. A. Field
 Type justifying machine L. E. Quick
 Typewriter action I. T. Schaaff
 Typewriter line lock J. D. Daugherty
 Typewriter type cleaning device E. G. Allen
 Typewriting machine W. J. Campbell
 Typewriting machine S. A. Thompson
 Typewriting machine line spacing mechanism W. R. Fox et al
 Typewriting or other machines, Key action for I. T. Schaaff
 Umbrella A. Kortenbach et al
 Universal joint J. T. & G. W. Hayden
 Universal joint H. D. Jones
 Urinal or the like W. Beetz
 Valve F. L. Smith
 Valve, Atmospheric G. W. Hayden
 Vault lining making machine F. C. Robinson et al
 Vehicle body W. W. Rickard
 Vehicle Foot power J. D. Schooley
 Vehicle reach and hound wear plate T. A. Strode
 Vehicle running gear F. G. Winnek
 Vehicle seat connecting appliance H. Smith
 Vehicle, Self propelling E. R. Hewitt
 Vehicle spring A. E. Sutton
 Vehicle steering apparatus, Motor C. Smith
 Vehicle switch system, Electric F. Porsche et al
 Vehicle transmission gearing, Motor C. Schmidt
 Vehicle wheel Z. Nevers
 Vending device J. Gregory
 Vending machine A. A. Schaff
 Vessel stopper W. K. Conley
 Vise, Drill press J. W. Kincaid
 Wagon body raiser W. A. Parrish
 Wagon brake W. S. Livengood
 Wagon gate W. G. Stroh
 Wagon, Lumber I. S. Richardson
 Wagon or carriage spring coupling G. F. Thompson
 Wagon rack and box lifter F. D. Baker
 Wall and concrete block for same, Building, reissue O. U. Miracle
 Washing machine A. J. Schetrompf
 Watch, Stem winding and setting O. Anderson
 Water closet flushing tank F. A. Schossow
 Water gage glass M. M. Wood
 Water wheel W. & J. Roedel
 Wave motor D. G. Weems
 Weaving multiple tubular fabrics and hose coverings produced thereby G. D. Moore
 Wedge H. E. Denison et al
 Well, Hydraulic W. S. Post
 Well drilling machine L. D. Shryock
 Well packer, Deep G. A. Spang
 Wheel J. C. Raymond
 Wheel F. D. Howe
 Wheel W. W. Wallace
 Wheel J. C. Couper et al
 Whip actuating device 3 pats. W. L. Rawls
 Windlass, Ship's C. W. Blake
 Windmill regulator, Automatic P. A. Iversen
 Wind motor K. Lindsey
 Wire loom W. Orr
 Wires, rops, &c, Removing scale from A. B. Legend
 Woven fabric T. B. Dornan
 Wrapping machine, Newspaper I. L. Boyle
 Wrench A. C. Huckelbridge
 Wrench L. Griffin
 Writing machine M. Mayer
 Yoke center, Neck S. J. McDonald

DESIGNS.

Belt, Lady's W. C. Ellis
 Box Salt E. Hengelhaupt
 Cabinet E. Lavens
 Fabric, Textile A. M. Rose
 Horu, Motor car F. Berton-Houel

Matrices, Font of B. Nadall
 Photographic card mount H. H. Collins, Jr
 Radiator disk B. Briscoe
 Type, Font of 2 pats. H. P. Hamilton
 Type, Font of G. L. Marsh

Issued February 7, 1905.

MECHANICAL PATENTS.

Abrading disk F. N. Gardner
 Acid, Making nitric H. W. Hemingway
 Air compressing machine C. H. Richmond
 Air moistening apparatus H. M. Smith
 Alarm for table articles J. E. Neahr
 Allyl-formaldehyde-iso-sulfo cyanate and making same S. Fabaron
 Anesthetics, Apparatus for administering R. C. Coburn
 Armor-plates, Manufacture of C. de Esteve-Liatas
 Auger bit C. C. Hiatt
 Automobile F. W. Hedgeland
 Automobile gearing O. Richards
 Awning lift H. T. Adams
 Axle, Vehicle J. & P. Chaney
 Badge S. R. Drown
 Badge holder L. Sarr
 Bait Artificial C. H. Smith
 Baling press J. M. & E. Valentine
 Barge or other boat I. S. Martin
 Battery U. D. Foster
 Bearing, Revolving F. ter Weele
 Bed bottom, Spring F. Karr
 Bed, Folding J. L. Taylor
 Bed or bed couch, Sofa L. H. Bullard
 Beer from barrels, Apparatus for drawing off J. Delaittre
 Binder, Temporary J. W. Ranson
 Binding post C. C. Sibley
 Bisulfite, Apparatus for making G. A. Stebbins
 Blowpipe, Spirit A. H. O. Jackson
 Boiler setting M. T. J. Ochs
 Bone compressed product J. R. Hunter
 Bone cutting and oyster shell crushing machine Green W. R. Sanford
 Bone product J. R. Hunter
 Bone, Treating J. R. Hunter
 Book and removable cover therefor E. T. Ustick
 Bookcase, Knockdown sectional J. Hoult
 Book cover, Sales B. E. Jones et al
 Book leaf L. Clark
 Book, Pocket memorandum H. W. Heete
 Book supporter L. H. Latimer
 Boring instrument E. C. Mueller
 Bottle J. C. Waugh
 Bottle F. Brunner
 Bottle neck cleaner T. E. Goff
 Bottle or the like holder A. R. Sherwood
 Bottle stopper C. Ray
 Bottle stopper E. I. Lowry
 Bottle washing device I. J. Flaherty
 Bottle washing machine bottle receptacle H. G. Miller
 Box H. E. Leppert
 Boxes, Blank for covering extension edge E. B. Cawthray
 Bracelet I. Bennett
 Bracelet or belt, Automatically adjustable J. I. Sommer
 Bracelet and support H. F. Keil
 Brake S. Kennedy
 Brake A. F. Peters
 Brazing metals J. F. Richardson
 Bridge, Suspension W. Hilderbrand
 Bridle bit J. Fitz Gibbons
 Brooder M. Johnson
 Building block L. F. McClure
 Burial apparatus W. O. Canouts
 Burner regulator H. Lamp
 Button H. P. Froud
 Button, Glove H. Kerngood
 Cabinet, Credit J. A. Pitt
 Cabinet, Credit E. D. Troutman
 Cabinet, Lace J. M. Aal
 Calendar I. A. Brennan
 Can machine J. M. Hotherhall
 Can making machines, Device for feeding blanks to S. E. Walter
 Can washing apparatus W. F. Sinhs
 Candy mulling machine C. Thibodeau
 Car brake F. G. Koehler
 Car brake operating device W. K. Smith
 Car buffer, Pneumatic W. W. Dennis
 Car coupling F. S. Sheffer et al
 Car coupling 2 pats. E. H. Janney
 Car coupling M. J. Carter
 Car door fastener L. Yarnell
 Car draft and buffing gear M. A. Garrett
 Car, Dumping N. Wilcox
 Car fender I. T. Rice
 Car fender L. A. Bechtel, Jr
 Car fender, Street J. I. O'Dell
 Car heating system E. H. Gold
 Car skid, Adjustable F. H. McElvain
 Car steering gear, Motor H. W. Hellmann
 Car, Stock B. F. Venable et al
 Car, Vestibule J. D. Hamecourt
 Cars, Metal skeleton frame construction for passenger H. Remunder
 Carburetor E. Walther
 Carburetor, Hydrocarbon engine I. J. Cook
 Card, Filing E. J. Lees
 Card, Lace J. W. Wolff
 Carpet stretcher J. S. Woodcock
 Castings, Manufacture of chilled I. S. Seaman
 Cattle tie E. R. Wilson
 Centrifugal machine J. W. Macfarlane
 Centrifugal machine operating means W. L. D'Olier
 Chain, Drive L. R. Rogers
 Checkrein hitching or unhitching device J. H. Zie
 Chuck, Drill R. Binnie
 Chuck, Niople A. W. McGahan et al
 Circuit closer W. T. Bell
 Circuit controller L. Pfingsz
 Circuits, Means for protection against short C. E. Barry
 Clamp H. A. Knoke
 Clasp C. E. Smith
 Clay products, Machine for cutting C. A. Christiansen
 Clevis H. P. Thomas
 Cloth strips, Machine for folding and winding A. L. Adams

Clothes clamp.....J. D. Barnes
Cock. Stop and waste.....C. S. Mook et al
Coffee or tea urn.....J. B. Weis
Coin controlled machine.....F. E. Hall et al
Coin controlled mechanism.....M. O. Anthony
Coin holding device.....W. H. Corbett
Collar and cuff bag or receptacle.....C. A. F. Lombard
Combing and cleaning machine.....Flax
Commutator brush holder.....W. Heap et al
Concrete beam, girder, &c., with iron bars in-
laid for building purposes.....H. Siegwart
Concrete beam, girders, &c., with iron bars in-
laid for building purposes. Manufacture of
reissue.....H. Siegwart
Concrete mixer.....W. J. Judd
Concrete, &c. Mixing machine for W. J. Judd
Conduit system. Magnetizable conductor.....W. J. Alexander
Conveyer. Teleopic.....D. D. D. Plunket
Cooler.....R. Thomas
Copper. Producing pure.....L. M. Lafontaine
Corking machine.....H. Robinson
Corn popper.....C. B. Gilmore
Corn shucker.....O. S. Eliothorp
Corn shucker hoist.....D. W. Smith
Cotton chopper.....W. R. Self
Cotton chopper.....E. N. West et al
Cotton chopper.....J. B. Woods
Cream separator. Centrifugal.....M. Pedersen
Cream separator. Centrifugal.....K. K. McLeod
Crushing or pulverizing mill.....E. C. Griffin
Cultivator.....T. Mulally
Cultivator and harrow. Combined.....E. F. Kingston
Cultivator. Corn or cotton.....H. M. Lauber
Current apparatus. Alternating.....E. Bennett
Current generator. Alternating.....E. Ziehl
Curtain pole.....A. R. Harmany
Cut out. Thermal.....C. E. Lockwood et al
Dam and closing or completing same.....W. L. Church et al
Decalcomania.....L. A. Ziegler
Dental furnace. Electrical.....L. L. Bosworth
Depilating composition.....J. Campbell et al
Derrick.....A. H. H. Miller
Desk attachment.....H. H. Miller
Dish.....J. J. Benson
Disinfecting apparatus.....E. Fournier
Disintegrating machine.....A. W. Smith
Disk attachment.....W. A. McGlamery
Display cabinet.....E. E. Barton
Display stand.....W. H. Conner et al
Docket. Perpetual loose leaf court R. F. Parry
Door and means for suspending same. Swing-
ing sliding.....R. H. Jones
Door check and closer.....A. F. Enquist
Door fastener.....M. O. Koyce
Door. Platform trap.....O. M. Edwards
Door. Sectionally folding.....C. F. Kusch
Door securer.....E. W. Dyer
Door sheave. Sliding.....E. E. Bright
Dratt equalizer.....R. Newton
Drafting instrument.....K. Pauli
Drainage tube.....J. J. Bowker
Drawing instrument.....J. Hoffmann
Dress shield fastener.....N. F. Anderson
Dust beater.....C. V. D'Ossone
Dust collector.....A. A. Clough
Dyeing apparatus.....L. Detre
Dyeing machine.....J. Leisel
Egg beater or cream whipper.....H. A. Smith
Egg opener.....A. C. V. Merrifield et al
Electric apparatus. Vapor.....J. T. H. Dempster
Electric circuits of high inductance. Asym-
metric shunt for direct current.....W. S. Horry
Electric machine. Dynamo.....H. A. E. Harle
Electric machine. Dynamo.....J. Sachs
Electric meter.....E. S. Halsey
Electric meter.....F. Holden
Electric meter. Coin freed.....F. Holden
Electric meter prepayment attachment.....F. Holden
Electrical distribution system.....T. Bodde
Electrical distribution system.....C. W. Stone
Electrode. Storage battery.....E. A. Sperry
Elevator.....J. H. Millsaps
Elevator electric signals. Apparatus for oper-
ating.....reissue.....H. Pedersen
Embroidering machine.....F. Mueller
Engine.....F. M. Overholt
Evaporating apparatus.....W. C. Anderson
Excavating machine.....N. D. Petrie
Exercising and massaging by friction. Com-
bined apparatus for.....G. H. Shepherd
Exhaust. Variable automatic.....C. J. Edwards
Eyeglass case.....G. E. Coope
Eyeglasses.....P. Moews
Fastener. Apparel.....H. Westling
Fence.....J. M. Sutherland
Fence post puller.....L. S. Doan
Fencing tie. Wire.....O. S. Sturtevant
Fertilizer spreaders. Feed regulating mechan-
ism for.....C. L. V. Kinney
File. Record or account.....F. C. McElroy
Filter.....2 pats.....K. Kieter
Filter. Barrel.....H. C. Holthoff
Fire bucket.....A. E. Waggoner
Fire extinguisher.....E. Schaefer
Fire extinguishing apparatus.....F. Thompson
Fire resisting vault for safes.....J. C. Thompson
Fireproof blinds or curtains. Roller for.....E. H. McCloud
Fireproof block.....R. B. Sheldon et al
Fireproof window releasing device.....reissue.....A. W. Cooper
Fish catching device. Shell W. W. Shelby et al
Fishing reel.....A. E. & W. H. Leaver
Fishing reel.....A. B. Hendryx
Floor dressing machines. Dressing roller for.....C. B. Wattles
Folding table.....W. B. Moore
Forge. Blacksmith's.....A. W. McCaslin
Frame structure.....J. H. Kassens
Friction wheel.....C. M. Sester
Fuel. Artificial.....A. P. Lepu
Furnaces of high temperature. Continuous
heater for.....L. Houze
Game apparatus.....J. Vickers
Garment.....H. A. Saks
Garment.....J. K. Gentry
Garment fastener and supporter.....H. Reynolds
Gas and recovering by-products. Apparatus
for manufacturing.....L. P. Lowe
Gas apparatus.....C. G. Strubler
Gas burner.....C. V. Hill
Gas burner.....J. W. Neumann
Gas cleaning apparatus.....L. P. Lowe
Gas engine.....E. J. Stoddard
Gas engine.....S. J. Webb

Gas generator. Acetylene.....W. B. Dickson
Gas manufacturing apparatus.....L. P. Lowe
Gas of fuel engine.....E. Thomson
Gas retort.....A. Heckert
Gas station meter.....D. McDonald et al
Gas washer.....2 pats.....B. J. Mullen
Gate.....W. L. Northam
Gear. Cone-pulley speed-changing.....J. A. White
Gearing. Speed reducing.....J. L. Hall
Gearing. Variable speed.....S. L. Langdale
Glass forming machine.....D. L. Shirley et al
Glaas mold.....J. F. Buzby
Governor.....3 pats.....N. Lombard
Governor. Centrifugal.....G. E. Lloyd
Grain bagging and weighing machine.....J. B. Williams
Grinding machine.....R. J. Myers
Gumming machine.....J. G. Kennedy et al
Gun. Magazine.....J. M. Browning
Guns or rifles. Trigger mechanism for drop
down.....J. W. Smallman
Harvester. Clover seed.....J. C. Kistler
Hat curling machine.....W. J. McGall
Hat fastener.....J. E. Ferneborg
Hat fastener.....J. E. Scott
Hay rack.....J. A. Beierschmitt
Heater.....W. W. Woods
Heating apparatus.....N. M. Eddy
Heating system. Vacuum.....J. Collis
Heeling machine.....G. F. Stewart et al
Hide working machine.....A. A. Hutchinson
Hinge.....F. P. Pfeighar, Jr
Hinge and lock. Combined.....F. W. Armitage
Hoop sawing machinery.....A. F. Ward
Horse rake. Automatic.....E. A. Johnston
Hose coupling.....A. A. Jones
Hose supporter.....S. F. Ellis
Hot air register.....reissue.....S. Tuttle
Hydrocarbon burner.....E. Thomson
Incubator.....K. R. Danton
Indexing clip. Adjustable.....C. C. Smith
Induction motor.....H. G. Reist
Ingot extractor. Electric.....J. R. Speer et al
Ingot stripper.....W. H. Balzell et al
Ink well.....S. G. Baldwin
Inking apparatus.....F. E. Kempf
Internal combustion motor.....A. Vogt
Keel. Drop.....C. B. Wainwright
Knitting machine needle and lever for holding
same.....H. A. Houseman
Knitting machine web holder. Circular.....H. A. Houseman
Ladder.....F. McNaughton
Lamp. Electric arc.....A. G. Davis et al
Lamp. Gas.....A. W. Nicholls
Lamp. Safety.....H. C. Stone
Lamps. Means for supporting the mantles in
inverted incandescent gas.....J. Bridger
Latch.....H. M. Whitcomb et al
Latch. Gate.....F. W. Simons
Leather working machine.....A. F. & A. C. Durke
Lens grinding machine.....L. W. Bugbee
Letter box fastener.....E. F. Wallace
Level.....L. H. Bradshaw
Lights or other fixtures. Cord grip for pend-
ant.....W. L. Bradshaw
Liquid settling tank.....N. S. Shaler
Liquids. Coin controlled apparatus for deli-
very of.....E. C. Janson
Loading or unloading trucks, &c. Apparatus
for.....U. B. Crane
Lock shoe.....W. C. Larison
Locomotives, &c. Tender for.....C. Vanderbilt
Loom fringe pulling mechanism.....C. Rothwell
Loom let off mechanism.....C. F. Koper
Loom. Narrow ware.....E. H. Ryon
Loom picker stick motion.....C. F. Roper
Loom reed detaching device.....W. McMichael
Lubricator.....E. Berger
Lubricator.....P. J. Lockwood
Magnet core for dynamos and motors. Field
.....K. Kishi
Mail bag catcher.....A. Frost
Match.....E. Thorn
Matte. Converting.....O. S. Garretson
Measuring areas of surfaces. Indicator de-
vice for machines for.....J. E. Nightingale
Mechanical power.....R. Dooson
Metal balls. Manufacture of hollow.....A. Johnston
Metallurgical furnace.....R. L. Lloyd et al
Mineral recovering apparatus.....F. S. Prouty
Mirror hanger.....J. L. Tandy
Mixing machine.....W. J. Judd
Mixing machinery.....E. L. & A. W. Ransome
Moistening and sealing machine. Envelop.....B. M. Rogers
Molding machine.....W. L. Mersfelder
Mop holder.....A. W. Smith
Motor casing. Compound.....D. F. Graham et al
Moving platform.....J. M. Dodge
Mower bar.....O. R. Coe
Mower or cutter. Lawn edge.....A. C. Wirth
Mule.....L. O. Goodwin
Music leaf turner.....G. Ponarouse
Music leaf turner.....W. G. Jamieson et al
Negative pole plate.....P. Seeliger
Nut lock.....J. C. Taylor
Nut lock.....G. W. King et al
Nut lock.....T. W. Steele
Nut. Vehicle axle lock.....W. Belfield et al
Oil in tanks or wells. Heating.....W. Richards
Oil tank. Delivery wagon.....J. N. Gibson
Ore concentrator.....A. H. Stebbins
Ore roasting furnace or kiln.....G. O. Peterson
Ore roasting furnace. Rotary.....F. Heberlein et al
Ores or the like. Apparatus for anhydrously
concentrating.....G. H. Fettus
Ornamental surface.....C. E. Sandstrom
Ossein product.....J. R. Hunter
Pail holder.....D. A. Cahill
Painting machine. Molding.....E. McGarrath, Jr
Paper bag fastening means.....H. H. Glenwright
Paper box. Folding.....W. J. Griffin
Paper making mechanism.....C. C. Jenks
Paper or similar material. Mechanism for
severing sheets from webs of.....G. E. Pancoast
Paper roll handling device.....W. P. Stickney
Pasteurizing apparatus.....W. B. Wright
Pasting device.....A. C. Gettin
Pavement, floor, &c., composed of plastic ma-
terial.....J. C. Bayles
Pen. Fountain.....R. A. Hamilton
Penholder.....T. M. Smith
Phonograph records or blanks. Machine for
making dipped.....W. H. Miller et al
Photographic printing apparatus.....G. L. Cragg
Photographs, medallions, &c. Mounting for.....G. B. Keplinger

Pick.....H. G. Atha
Pile fabric. Woven.....H. Sarafian
Pin tumbler lock.....W. C. Stephens
Pipe.....A. S. Speirs
Pipe coupling.....A. T. Herrick
Pipe coupling.....O. E. Anderson
Pipe joint. Expansion fluid.....H. A. Allen
Pipe making machine.....A. N. Fairman
Pipe wrench.....C. H. McCready
Pipes or other tubular bodies. Machine for
flanging the ends of.....2 pats.....L. D. Chandler
Plane.....W. H. Gardner, Jr
Plane. Rabbeting.....F. D. F. D. Smale
Planter tool.....G. W. Stone
Planter.....W. S. Graham
Plaster. Method of and apparatus for calcin-
ing.....F. A. Simonds
Plating apparatus. Nickel.....J. W. Aylsworth
Plow Disk.....W. N. Allen
Plow. Sulky.....W. A. Baldwin
Pneumatic carrier.....C. H. Burton
Pole. Carriage.....R. Bolze
Pole or wagon running gear. Sectional.....C. F. Poundset et al
Portable platform.....J. Downs
Postmarking and canceling machine.....E. R. Malmberg
Potato cutter.....E. R. Schlick
Potato digger.....A. Anderson
Potato digger.....L. A. Aspinwall
Poultry house.....G. C. Scott
Powder and making same. Smokeless.....H. W. Wiley
Powder packet filling and folding machine.....F. A. Robinson
Precious metal bearing ores. Treating.....A. H. Brown
Presses. Compressing wheel for.....A. Milne
Printing machine. Check.....E. E. Angell
Printing surface and making same.....W. J. Yeoll
Propeller.....C. J. Jones
Puddling or busheling furnace. Rotary.....W. Stubblebine
Pulley. Split.....J. Donovan
Pulley wheel. Self lubricating.....J. R. Williams, Jr
Pump.....H. D. Penny
Pump plunger. Self adjusting.....J. Reid
Pump. Steam.....F. D. Cable
Punch. Center.....J. J. Hartley et al
Rail.....H. W. Frackmann
Rail joint.....J. M. Riggs
Rail Third.....L. T. Crabtree
Rails. Stringer support for electric third.....F. E. Kinsman
Railway joint. Diamond.....C. A. Woodward et al
Railway signal.....F. L. Dodgson
Railway signaling apparatus. Electric.....W. C. Bethel
Railway switch.....G. E. Madeley
Railway switch.....E. G. Mick et al
Railway tie. Metallic.....C. W. Garrett
Railways. Automatic system of signaling for
electric.....S. M. Young
Raisins in bulk. Machine for preparing.....E. Meiri
Relay. Neutral.....C. D. Olsen et al
Retort.....J. L. Jackson
Roadway.....C. W. Baker
Rolling bars from coils. Apparatus for.....J. Bergmann
Roiling pin.....F. B. Deiter
Rope splicing tool or implement.....W. Floyd
Rotary engine.....R. Lee
Rotary engine.....C. R. Twitchell
Rotary engine. Reversible.....J. Redding
Rotating bodies. Apparatus for testing the
balance of.....C. J. A. Heise
Rubber filler.....J. R. Hunter
Rubber or other trees. Implement for tapping
or bleeding india.....H. V. Bagot
Saddietree.....G. J. Theobald
Sand blast apparatus.....F. W. Reinhardt
Sash cords. Device for connecting or discon-
necting window.....T. Vache
Sash lock.....A. Ramage
Saw machine. Drag.....G. O. Walker
Saw.....R. I. Foreman
Sawing machine.....S. Blaisdell
Scale. Skim milk and whey weighing.....A. L. Sauer
Screen fastener.....C. W. Greene
Seal for bottles, &c.....H. P. Perkins
Sealing or seaming sheet metal cans. Appar-
atus for vacuum and mechanically.....E. Norton et al
Seams in sheet metal articles. Forming.....M. J. Kenny
Seed drill.....S. E. Davis
Seeds. Separating.....T. M. Prime
Sewed articles. Ornamental seam for.....R. Loeb
Sewing machine pin holder attachment.....A. C. Minghetti
Shade bracket. Window.....J. Petersen
Shade roller pawl.....W. D. Janes
Shafts, &c. Automatic controller for.....C. Kuhlewind
Sheet metal article.....M. J. Kenny
Show case or the like bracket.....V. Sjostrom
Shredding machine.....M. E. Cooley
Shuttle thrower. Pneumatic.....E. C. Cobb et al
Sign.....H. L. Woolfenden et al
Signal lock and register. Train order.....D. O. Mitchell
Silk, cotton, ramie, or the like. Spreader for.....C. Mann
Singletree.....E. Packer
Slag. Apparatus for the removal and utiliza-
tion of.....T. C. King
Smelting. Matte or pyritic.....O. S. Garretson
Smelting native copper bearing rock.....F. R. Carpenter
Smoke consuming furnace.....B. E. Wrigley
Smoke stack.....C. Foltz et al
Snow and ice melter.....J. W. Daniels
Snow plow. Railway.....E. J. Litt
Snow shovel.....J. Gifford
Soldering iron.....L. Silcott
Sole pressing machine.....H. A. Davenport
Sound. Apparatus for the reproduction and
amplification of.....G. Laudet
Square Bevel.....J. F. Thomas
Squaring stone, &c. Instrument for.....E. T. Stevens
Spark arrester, extinguisher, and discharger.....J. W. Heaton
Spindle bobbin driving means. Rotatable.....G. O. Draper
Spoon. Ice cream.....R. Nielsen

Spindle bobbin driving means. Rotatable.....C. E. Lovejoy
Stacker. Hay.....A. W. Lightburne
Stacker. Hay.....E. R. Riley
Stair lift. Moving.....J. M. Dodge
Stamp mill.....R. Schorr
Steam generator.....B. McIntire
Steam trap.....W. A. Gibson
Stocking supporter.....A. Botermans
Stopping mechanism. Automatic.....G. E. Bowers
Store service apparatus.....C. W. McCormick
Stove. Folding camp.....J. B. Annin
Support.....H. B. Wentworth
Suspenders.....W. C. Fisher
Switch operating mechanism.....J. P. Lowe
Tanning machine. Automatic.....C. J. Glasel
Telegraph.....F. A. Stumm
Telegraph. Automatic alarm.....A. D. Shaw
Telegraph poles. Raising fork for.....J. P. Turney
Telegraph system.....W. E. Athearn
Telegraphy.....W. C. A. Hammel et al
Telegraphy. Wireless.....P. B. Delany
Telegraphy. Wireless.....G. O. Squier
Telephone receiver.....A. R. Thollander
Telephone sanitary attachment.....I. M. Slocum
Telephone toll register.....G. A. Long
Telephony.....I. Kitsee
Temperature alarm. Electric.....C. P. Hepler
Templet and gage. Combined.....F. G. Marbach
Theophyllin. Preparation of.....F. Ach
Thread board lifter. Automatic.....J. Wilkinson
Thread dressing machine.....G. A. Fredenburgh
Thread or yarn tension device.....A. W. Allen
Threshing machine.....J. L. Owens
Tire. Pneumatic.....C. W. Maxon
Tires or the like. Former or mold for making
pneumatic.....T. Sloper
Tires. Vulcanizing leather covers to rubber.....A. M. E. de Montureux
Tongue truck or support. Vehicle.....J. P. Duncan
Tool. Combination.....P. Opocensky
Tool handle. Pneumatic.....G. H. Gillman et al
Tool holder.....C. W. Phillips
Tool holding and adjusting mechanism.....F. W. Taylor et al
Toy.....W. C. Soule
Toy or figure. Dancing.....C. E. Meeker
Tramway. Cable.....W. Dusedau
Transmitting device.....W. K. Austin
Traveling bag.....R. A. Pearson
Tree protector.....J. A. Perou
Trolley.....E. H. Miller
Trolley. Multiple contact.....L. M. McBride
Trolley pole controller.....C. V. Greenamyer
Trolley wheel guard.....M. M. Hart
Truck.....A. C. Johnston
Truck. Motor.....W. O. Brown
Trunk.....C. C. Wigington
Trunk attachment.....C. T. Wright et al
Trunk trays upright. Device for holding
swinging.....C. T. Wilt
Tube making machine or press.....H. R. Munder
Tuck folder.....A. Laubscher
Turbine blade.....V. Gelpke et al
Turbine. Elastic fluid.....F. Hodgkinson
Turpentine from wood. Obtaining spirits of.....J. C. Mallonee
Two cycle motor.....E. Korting
Typewriter.....L. Doederlein
Typewriter carriage return mechanism.....L. Doederlein
Typewriting machine.....J. A. Smith
Typewriting machine escapement mechanism.....G. M. Kitzmiller
Umbrella, glove, and handkerchief holder.....G. M. J. Ahlstrom
Undergarment. Combination.....L. J. Critcher
Unicycle.....O. Jensen
Valve.....C. P. Carlin
Valve and valve gear for explosive engines.....W. Barber
Valve. Check.....J. C. McCarly
Valve device.....J. McGillivray
Valve. Reciprocating.....M. Rothfuss
Valve Safety.....L. Schutte
Vanadium. Reducing.....F. R. Carpenter
Vault. Burial.....E. P. Gillespie
Vegetable cutter.....C. Amon
Vehicle body.....H. Smith
Vehicle brake.....H. J. Dohrer
Vehicle brake and motor controlling mechan-
ism. Motor.....C. Schmidt
Vehicle check brake.....R. McGrew et al
Vehicle controlling mechanism. Self-propell-
ed.....A. A. Ball, Jr
Vehicle frame. Self-propelled.....A. A. Ball, Jr
Vehicle gearing. Motor.....C. Schmidt
Vehicle running gear.....T. D. Lines
Vehicle wheel.....J. N. Byers
Vending machine.....W. J. Brennan
Vending machine.....F. C. Schofield
Vending machine.....M. O. Anthony
Vending machine. Check or coin controlled
.....P. F. Cox
Ventilating cowl.....E. J. Precourt
Ventilation of buildings.....D. Fairbanks
Vessel. Collapsible.....W. M. Fulton
Vibratone.....F. Jackson
Wagon. Dumping.....J. F. M. Krasmer
Wagon tool.....F. P. Burkhardt
Wagrn. Vending.....G. W. Sturgis
Wall construction.....R. T. Frost
Watchmaker's tool.....C. D. Hillabold
Water by means of ozonized air. Sterilizing.....H. Friberg
Water sprinkler or street washer.....E. Henry
Water wheel governor.....F. S. Replogle
Watering device.....J. P. Finegan
Weighing scoop.....J. L. Taylor
Well casing head. Oil.....J. W. Glenn
Well drilling machine.....W. L. Bruener
Wells. Apparatus for raising liquids from
deep drilled.....T. F. Moran et al
Wheel.....C. B. Haney
Wheel tension device.....E. Brougham
Whip operating mechanism.....C. E. Theurer
Whip socket.....J. C. Brooks
Wire fabric weaving machine.....J. W. Snedeker
Wire reeling machine.....C. Ernst
Wire stretcher.....H. D. Kreiter
Wrench.....R. N. Miller
Wrench.....A. Farley
Wrench.....W. R. Cooper

DESIGNS.

Badge.....L. Bedichimer
Belt.....A. L. Greenwood

Box. Toilet powder J. Daehler
Cover for chafing dishes or other articles 2 pats. G. E. Savage
Display stand. Shoe K. B. Mathes
Match safe member A. T. Ogden
Pencil tip. Lead B. B. Goldsmith
Plate or dish 2 pats. W. A. Pickard
Plate or similar article C. A. May
Toy bank or similar article J. F. F. Bjurman
Vehicle body C. H. Palmer
Vending machine casing. Coin controlled M. L. Killits

Issued February 14, 1905.

MECHANICAL PATENTS.

Acid, analogous derivatives, and making them. Dipropyl-barbituric E. Fischer
Acid and making same. C-C-dialkyl-barbituric E. Fischer
Acid and making same. Disubstituted-barbituric E. Fischer
Acids and making them. Trisubstituted-barbituric E. Fischer
Adjustable chair J. Harvey
Advertising apparatus. Illuminated A. H. Trimp
Agricultural implements. Change speed gearing for C. H. Pelton
Air compressor equalizing mechanism E. Cheshire
Air lock C. Campus
Alloy. Metallic L. H. E. Lacroix
Amalgamator M. V. Lasswell
Ammonium sulfate saturator K. Zimpell
Anchoring device. Tractor A. Castelin
Angle joint. Interlocking S. R. Bailey
Armature-windings of dynamo-electric machines. Conductor for the C. A. Parsons
Auger bit P. J. Creeden
Automobile controller E. N. Dickerson
Auving pole mounting 2 pats. M. F. Wiedemann
Axle L. A. Keene
Bag holder W. Downie
Band cutter and feeder P. G. Gifford
Bath tub pattern F. D. Cook
Bearing for armature shafts. Antifriction F. G. Ward et al
Bearing. Roller J. A. Lidback
Bearings. Yoke and hardened steel collar for marine thrust C. W. Thorn
Belt. Driving C. E. Becker
Belt shifting device. Machinery J. H. Moore
Bending machine A. G. Scherer
Bicycle stand J. G. Johnson
Binding loose or folded sheets of paper, &c. T. G. Searles et al
Bit W. B. Swan
Blower J. McKone
Bobbin holder G. A. Clark
Boiler Q. N. Evans
Boiler flue cleaner F. W. Jackson
Boiler patch S. D. Tompkins
Boiler sediment collector H. H. Baltzley
Boiler superheater. Steam 2 pats. F. J. Cole
Boiler superheater. Steam F. J. Cole et al
Boiler tube detaching tool H. A. Poppenhusen
Bolts, &c. Manufacturing J. L. Replogle
Book H. H. Hill
Book binding L. Streit
Book construction H. H. Hill
Book. Insertible leaf record M. C. Neuner
Book or album. Blank J. R. Staples
Books. Machine for making end papers for F. H. Hoffstedt
Books. Removable cover and holder for pass and sales F. L. Winters
Bottle J. W. Potter
Bottle and stopper therefor A. J. Swain
Bottle closure W. H. Sheffield
Bottle closure T. F. Odell
Bottle clutch A. Wolfensberger
Bottle. Non-refillable J. L. Prior
Bottle. Non-refillable O. Yates
Bottle. Non-refillable W. M. Barry
Bottle. Non-refillable W. Handler
Bottle. Non-refillable C. J. Paulson
Bottle stopper E. P. Dole
Bowling alley or game apparatus 2 pats. L. A. Scholz
Box W. E. & D. M. Taylor
Box fastener E. J. Stewart
Box machine. Cylindrical W. H. Stout
Brake F. Quintano et al
Brake beam F. R. Cornwall
Brake shoe for wagons, &c. C. B. Siner
Braking system. Electric C. A. Mudge
Brick cleaning machine M. T. Christopher
Brick making apparatus J. Draenert
Brick making. Mixer and feeder for use in E. D. Steger
Bridge C. Bryant
Bridle bit R. G. Cain
Briquet machine R. Schorr
Broom head W. P. McMahon
Brush W. Reese
Brush. Paint C. W. Swanson
Buckle G. Shoemaker
Building construction J. H. Murphy et al
Burglar alarm and door or window check. Combined C. P. Logan
Button forming machine. Collar E. J. Yale
Button. Self-fastening E. Noelle
Button. Separable J. Gibson
Cable terminal C. R. Sturdevant
Caisson or coffer dam J. W. Doty
Calculating machine H. E. Goldberg
Calendar. Perpetual J. M. Crawford
Camera J. Goddard
Camera finder A. O. Graf
Can body making machine J. Anderson
Car construction. Metallic G. I. King
Car door W. C. Norman
Car fender R. Andlauer
Car friction draft gear. Railway W. H. Miner
Car friction draft-rigging. Railway W. H. Miner
Car friction draft-rigging. Railway P. N. Moore
Car friction spring draft-rigging. Railway P. N. Moore
Car lifting apparatus. Street C. Churilla
Car or train signal W. Lintern
Car or wagon. Dumping C. Erickson
Car self-coupling device. Railway H. de Castro

Car signal system W. Lintern
Car. Steam motor J. A. & J. M. B. Rey
Car. Unloading machine J. G. Helmchen
Car wheels to their rails. Device for fastening A. J. Eddins
Cars or logging sleighs. Stake for C. Lewis et al
Carbureter C. L. Mohr
Carbureter. Portable M. Mossig
Card punching device for the manufacture of pattern cards C. Handwerck
Card punching machine lashing device C. Handwerck
Carpet beating and brushing machine J. J. McGrath
Carriage top support J. Hough
Carrier automatic extension feeder L. W. Droegemeier
Cart E. C. Weber
Cartridge clip J. H. Goss
Cash register T. Carroll
Casing spear E. W. Jones
Casket F. E. Hollins
Casting pattern. Gear wheel T. W. Lowe
Ceiling and wall box J. T. Robb
Cement or concrete catch basins. Machine for making J. M. Phelan
Cement roofing and sheathing J. R. Kelly
Cement work. Outside form for C. Gustafson
Chart. Adjustable dress H. N. Plant
Check strap holding device F. A. Le Court
Cheese cutter W. G. Templeton
Cigar box filler H. J. Lewis
Clay screen I. H. Ross
Clothes line fastener H. Hubert
Clothes line reel A. Yeager
Clothes pin F. Kirkpatrick
Clover buncher W. A. Williams
Coal, &c. Means for distributing J. Campbell
Coal scuttle A. S. Mathers
Cock. Stop R. Y. & D. C. Buerger
Cockeye E. F. Butler
Coffee mill grinding disk A. A. Warner
Coffee or spice mill A. A. Warner
Coffee roaster and mixer D. J. Warner et al
Coffer dam D. E. Morgan et al
Coin controlled mechanism J. E. Packard
Coke oven. Retort C. S. Mason
Collar and pad. Combined horse T. R. Massey
Column. Metal W. F. Eichfeld
Combination lock A. S. Winston
Composition of matter and making it B. F. Gardner
Connection box E. R. Le Manuais
Conveying apparatus. Material H. Marcus
Cotton chopper and weed cutter C. S. Simmons et al
Coupling pipe J. H. Glauber
Crackling press J. T. Minvard
Cultivator and harrow. Combined S. A. Ware
Cultivator. Listed corn J. Simpson et al
Cup holder C. D. Holden
Curtain fastener J. F. Wildgen
Curtain pole tip E. Kirmss
Decoy duck J. H. Rimpler et al
Delinting machine R. Derdeyn
Dental plate H. J. Tarr, Jr
Disk drill T. Brennan, Jr
Display apparatus. Electric E. L. Zalinski
Display cabinet. Package W. E. Tone
Display rack for supporting, measuring, and cutting oil cloth or other materials G. H. King
Display support R. W. Lantz
Distilling apparatus L. E. Beers
Door and grating. Jail I. Maloch
Door hanger F. B. Cook
Door locking device C. W. Bitner
Door. Self closing F. M. Edmonds
Doubtless H. D. Le Suer
Draft apparatus J. G. Brown
Draft rigging. Friction spring J. R. Mitchell
Draft rigging. Friction spring P. N. Moore
Drawing instrument F. E. Jenkins
Drawing table R. Niemann
Dressmaker's fitting saddle M. L. Soule
Drier P. L. Simpson
Drinking glass or like tableware C. Weller
Droplight. Gas A. W. Nicholls
Duster L. M. Lea
Ear muff H. L. Wallach
Ear ring S. Zilinsky
Earth boring device H. L. Zander
Electric cable A. P. Hanson
Electric controller H. von Kramer
Electric machines. Means for regulation of dynamo A. S. Hubbard
Electric meter fraud detector W. W. Fuller
Electric motor controller A. C. Eastwood
Electric motors and controlling the speed of devices actuated thereby. Mechanism for operating O. C. Britsch
Electric system H. Dowie
Electric time switch W. H. Gerhard
Electric wire conduit R. W. Lyle
Electrical distribution and control system E. Lyndon
Electrical fountain M. Levy
Electrodes. Manufacturing storage battery or accumulator H. F. Hobel
Electrolytic apparatus A. Wright
Embossing machine A. Nicolle
End gate fastening P. J. Hurley
Engine attachment. Explosive B. Hayden
Engine nozzle. Locomotive steam J. B. Irving
Engine water cooler. Explosive E. F. Hulbert
Ensilage elevator distributor E. F. Gibbons
Envelope R. W. King
Envelope. Safety W. E. Hingston
Eyeglasses M. H. Wolff
Eyeglasses W. W. Cervantes
Eyeglasses or spectacles F. A. Stevens
Eyeglasses or spectacles D. H. Ludlow
Fan G. W. Davis
Fastener A. C. Leahy
Fastener. Separable D. L. Watson, Jr
Faucet F. Gaensslen
Feed and litter carrier W. & R. B. Loudon
Feed bag F. Thirion
Feed. Boiler water W. M. Lane, Sr
Feed mechanism H. E. & F. L. Eberhardt
Feed trough G. Shaw
Feed water regulator P. B. Bastarache
Fire apparatus for buildings. Emergency F. W. Cotton et al
Fire escape I. Bihl
Firing device. Automatic A. A. Ramsdell
Firearm. Breech loading G. A. Horne
Fireproof curtain D. W. Adams

Fireproof shutter F. C. Roberts
Fireproof window E. H. Lunken
Fish butchering and cleaning J. A. Hughlett
Fixture tap and receptacle holder. Universal C. S. Ryerson
Flexible mat O. F. Grant et al
Fruit picker G. W. Merker
Furnace L. De Rome
Furnace E. W. Tucker et al
Furnace J. T. Kelly
Furnace door. Gas F. R. Sellman
Furnace spout. Blast J. T. White
Game board W. Brown
Garment attachment J. E. Hibline
Gas cut off. Automatic W. A. Michael
Gas generator. Acetylene J. S. Thomas et al
Gas heater C. Eickemeyer
Gas. Purifying illuminating C. S. Lomax
Gearing. Toothed R. Urte et al
Gearing. Variable speed B. M. Coffe
Glass. Making W. E. Heal
Glazing machine E. G. Ruder
Gold separating machine F. C. Stevenson et al
Governor. Expansion engine B. W. Haydon
Governor. Shaft C. R. Minor
Grain drill G. O. Ecker
Grain elevator and weigher C. Bradford
Grapple O. A. Kahler et al
Grate. Movable endless 2 pats. J. Barnes
Greenhouse or other structure E. W. Hitchings
Grinding machine skate or tool holder M. B. Russ
Guano distributor G. W. Bawen
Gun. Bolt T. G. Bennett
Gun firing mechanism J. F. Meigs et al
Guns. Control apparatus for recoiling C. P. E. Schneider
Guns. Means for cleaning out the bore of F. L. Sawyer
Gypsum applicable for filling purposes. Manufacture of crystalline W. Brothers
Hair, &c. Preparing J. Battis et al
Hand covering T. J. & F. L. Seebacher
Hand hole covering A. C. Lynch
Hand wheel F. H. Richards
Harrow and seed coverer. Combined J. E. Roth
Harrow coupling G. E. Blaine
Harvester. Corn F. B. Pierce
Harvester guard W. Webber
Harvesting machine. Corn J. H. Johnson
Hat and coat hook C. Faust
Hat fastener W. W. McNaughton
Hat fastener. Separable W. W. McNaughton
Header and shredder W. Giles
Header construction J. M. McClellon
Heater W. Richter
Heating furnace. Continuous J. Reuleaux
Hinge F. M. Nelson
Hinge bracket E. R. Argenbright
Hinge for storm windows. Separable J. Diehl
Hinge. Release R. D. Struble et al
Hog scalding trough E. Scherer
Hook W. M. Williams
Horseshoe V. Piedilite
Horseshoe calking machine E. Rosser
Hose coupling S. W. Gooch
Hose coupling W. I. Bulger, Jr
Hose rack S. Mellinger
Hose support. Lawn H. S. Parker
Hot air register 2 pats. H. Symonds
Hydro extractors. Electrical drive for W. L. D'Olier
Hydrocarbon furnace G. C. Calentine
Hygienic and therapeutical purposes. Apparatus for J. M. A. Lacomme
Ice cream freezer attachment S. M. Shoemaker
Indexing mechanism B. M. W. Hanson
Ingot molds. Gutter plate for bottom cast W. J. Levey
Inhaling device A. Goldstaub
Insulated rail joint G. L. Hall
Insulators. Arrangement for securing wires on J. Macek
Internal combustion engine C. E. Sterne et al
Jack A. Searls
Jar R. H. McCoy
Jar, bottle, &c. closure G. E. Crawford et al
Jug lid. Automatic D. A. D. McMaster
Knife head C. J. Foster
Knitting machine. Straight A. Benndorf
Label applying machine. Box J. Aspenleiter
Lace fastener. Shoe S. Lipkowitz
Lamp S. T. Reese
Lamp for heating brooders G. C. Chase
Lamp ignition device. Central draft C. E. Gervais
Lamp. Incandescent electric J. H. Guest
Lamp. Signal H. W. Souder
Lamps. Spiritus igniter for petroleum S. Carlson
Lath. Metal P. Kuhne
Lathe. Automatic screw cutting and turning J. Coulter et al
Lavatory J. Maddock
Leaf system leaf inserter. Loose T. W. C. Bohn
Level. Gravity T. F. Deck
Lifting jack O. A. Dahl
Liquid heater A. Waldbaur
Liquids with gases. Apparatus for treating R. Quarez
Loader E. Bivert
Locomotive boiler J. M. McClellon
Locomotive brake shoe H. L. Winslow
Locomotive drive wheel W. A. Taylor
Loom pick motion H. Cote
Loom. Pile fabric T. B. Dornan et al
Loom shedding mechanism 2 pats. F. Lacey
Loom Shuttle. Automatic filling replenishing O. Janelle
Low water and circulation alarm for gasolene engines J. Schopbach
Lubricating machine R. H. Elkins
Lubricator G. W. Thurston
Lubricator G. M. Wolcott et al
Lubricator W. R. Eichensner
Magnetic controlling mechanism A. C. Eastwood
Mail box J. E. Graham
Mail pouch catcher G. W. Mershon
Mail receptacle M. S. Field
Massage apparatus J. C. Johansen
Massage implement rubber J. Barker
Match. Friction F. F. Sommers, Jr
Matching and gluing machine V. T. & C. Johnson
Measuring apparatus S. H. Cobb
Measuring device. Tailor's or dressmaker's F. Hosford
Metal working machines. Feed stop for B. M. W. Hanson

Metal working machines. Screw feed mechanism for 2 pats. B. M. W. Hanson
Metal working machines. Steady rest for B. M. W. Hanson
Mitten. Armored W. C. Niebuhr
Molding apparatus 2 pats. A. K. Beckwith
Motion. Obtaining oscillating or reciprocatory H. H. Young
Mowing machine J. W. Latimer
Music sheet guiding means G. B. Kelly
Nail clipper H. C. Hart
Nipper adapted to bend at right angle and to flat the ends of metal wires E. G. Christiansen
Nut lock J. W. Poince
Nut lock H. K. Forbis
Nut lock J. Rogers
Nut lock A. C. Baumwart
Nut lock A. M. Gaines
Nuts, bolts, studs, &c. Means for locking D. Marshall
Oil can C. W. Epperson
Oiling device. Chain wheel K. G. Roebeling
Opera glass C. F. Glocker
Optical projection apparatus A. T. Thompson
Ore sampler A. G. Gullberg
Ores or other uses. Machine for crushing D. J. Nevill
Oscillating engine H. J. Uhlenkott
Oxygen. Obtaining G. F. Jaubert
Paper board apparatus. Corrugated J. N. Hahn
Paper board. Machine for making corrugated J. N. Hahn
Paper board. Means for making T. W. McFarland
Paper. Cockle straightener for coated M. Cashin
Paper perforating machine E. H. McCloud
Paste, mucilage, &c. Receptacle or jar for P. D. Stretch
Peat collector. Tubular W. A. Milne
Peat for fuel. Preparing J. W. Vaughan et al
Pencil and sharpener. Combined W. G. Cramer
Penholder G. L. Black
Penholder finger hold B. B. Goldsmith
Phonograph records. Composition for making duplicate J. W. Aylsworth
Piano tone modifying means I. B. Smith
Pie making machine H. L. Manning
Pie making machine crust molding mechanism H. L. Manning
Pier. Floatable concrete S. Hadlock et al
Pile fabric C. C. Gelder
Pinion filling machine. Automatic C. J. Cleveland
Pipe coupling D. E. Brockett
Pipe cutter D. L. Ellis
Pipe cutting machine J. Parker
Pitman connection H. A. W. Smith
Placket holder H. N. Northrop
Planter marking attachment. Corn J. F. Callahan
Planter. Potato G. W. Spencer
Planter. Seed S. A. Morris
Platinum contact substances. Revivifying R. Knetsch et al
Plow W. T. Huggins
Plow. Double shovel A. F. Herod
Portable case F. B. Hagaman
Postmarking and canceling machine E. R. Malmberg
Power transmission device. Elastic G. H. Harris
Power transmitter. Friction clutch S. Borton
Power transmitting device for sewing or other machines P. Petri
Printing press C. H. Palmer et al
Printing presses. Device for cleaning the ink rollers and ink plates of cylinder F. Johnson
Profiling machine B. M. W. Hanson
Pseudo-cycloidalidene acetone and making same G. Merling et al
Pulley or wheel L. S. Lachman
Pulleys. Manufacture of metal W. Livingstone
Pulling device E. L. Biladeau
Pulp. Manufacture of articles from fibrous C. H. Valentine
Pump I. O. Day
Pump. Centrifugal J. M. King
Pump. Centrifugal, turbine, or like F. Ray
Pump. Centrifugal, turbine, or similar F. Ray
Pump. Metal F. J. Wich
Pump. Multistage centrifugal, turbine, or like F. Ray
Punching implement. Belt W. W. Woodley
Puzzle W. Perdue
Racking off and cask filling apparatus G. W. Jackson
Radiators, &c. Vacuum air valve for A. E. Duran
Rail brace W. S. Weston
Rail. Guard J. Ford
Rail joint C. Kofske
Rail joint O. M. Deemer
Rail joint splice bar lock R. Lang
Railway C. H. Howard
Railway frog. Reversible V. Angerer
Railway rail stay E. Laas
Railway signal. Automatic electric W. S. Jackson
Railway tie. Metallic J. H. Blair et al
Railway tie. Steel J. M. Griswold
Railway track aligning apparatus F. B. Shaw et al
Range or stove. Hot air S. Turansky
Razor box. Safety M. A. S. Zinn
Receiving apparatus H. Shoemaker
Rein guide C. Mitchell
Road making machine S. Randall
Rock drill R. Temple
Roof for mausoleums, tombs, &c. O. J. Copeland
Rotary engine H. N. Rathjen et al
Rotary engine M. B. Mills
Rotary engine E. Uren
Sad iron J. M. Harper
Safety hook F. Dronne
Sandpapering machine G. Herrmann
Sandpapering machine H. W. Rugg
Sash lock T. E. Smith
Sash lock, lift, and support F. Neudorff
Saw J. L. Hiers
Saw tooth tool T. Olsen
Scow C. Kuhn
Seal F. W. Brooks
Seal. Bottle C. Ingulli
Search light mounting W. O. Webber et al
Separator bundle straightener J. W. Alsop

Separator screen.....P. L. Simpson
Sewing machine bobbin case latch.....E. L. Bowers
Sewing machine thread holder and cutter.....E. M. Campbell
Shade hanger. Window.....D. Campbell
Shade supporting bracket.....U. G. Rich
Shaping machine guard.....T. L. Harris
Sheet metal plates. Cutting ends from J. Lee
Shirt bosom retainer.....E. H. Fifield
Shoestring having removable ornaments.....C. A. Funk
Shower pipe.....2 pats. W. H. Millsbaugh
Shutter bower and fastener.....S. E. Brown
Sign. Advertising.....C. R. Sr., C. R., Jr., & L. C. Groff
Sink trap attachment.....A. Savard
Slicer. Vegetable or fruit.....W. & F. Walter
Slipper. Fabric.....J. H. Giles
Speaking tube.....W. J. Storey
Spinning frame bobbin holder.....A. Ashworth
Spinning ring.....T. P. Farmer
Spiral cutting machine.....B. M. W. Hansen
Spiral milling machine.....B. M. W. Hansen
Spool holder.....E. Hechheimer
Spoon. Temperature indicating.....H. E. Ashley
Sprinkler system. Automatic.....E. L. Thompson
Sprocket wheel. Cone.....F. L. Morse
Squeezer.....F. W. Mayhew et al
Stake holder.....C. Lewis et al
Stalk cutter.....G. W. Whitcomb
Stanchion. Cattle.....C. H. Knickerbocker
Steam boiler.....S. S. Lanyon
Steam engine.....J. S. Wignall, Jr
Steam trap.....P. Fraser
Step and seat. Folding.....C. N. Hazelton
Steroscope.....C. L. Pappenhagen
Sterilizing apparatus.....W. J. Winchel et al
Stone base. Artificial.....C. C. McElhanev
Stone block. Artificial.....M. G. Mullenix
Stone building blocks. Mold for making artificial.....J. Finger
Stopper extractor.....W. H. Wheeler
Storage apparatus.....C. Piez
Stove. Coal and gas.....B. Masseth et al
Stove. Hot air blast.....C. M. Gunn et al
Stove water back.....D. F. Printz
Strainer. Milk.....J. O. Linden
Striking bag and swivel and universal joint attachments therefor.....H. & E. J. Goldsmith
Switch stand. Semaphore.....A. A. Strom
Syringe. Hypodermic.....M. Campbell
Syringe. Hypodermic.....F. W. Steuer
Telegraph relay.....J. L. Larish
Telephone exchange system.....W. M. Davis
Telephone register.....M. Hitt
Telephone switch. Intercommunicating.....W. H. Rose
Telephone system.....D. W. Campbell
Telephone system. Four party line.....G. Babcock
Teneriffe lace wheel.....R. E. Dexter
Thermostat.....J. I. Liller
Threshing machine.....J. H. Sommer
Tile. Corner.....E. Hazlehurst
Tiles. Production of undercut.....W. H. Cammeyer
Tire. Rubber.....C. H. Bryan
Tire shrinker.....J. G. Shuster
Tire. Vehicle.....S. G. Board
Tobacco cartridge.....W. E. Coleman
Tool head and fastening device therefor.....C. F. Rabb
Tool holding apparatus.....E. L. Truman
Totalizing mechanism.....H. E. Goldberg
Track sander.....A. B. Potts
Traction apparatus. Electric.....A. Zehden
Tray.....R. J. Carrier
Trolley.....J. Martland
Trolley.....B. Williams
Trolley guard.....E. R. North
Trolley pole controller.....J. P. Magney
Trolley switch.....A. Palmros
Trousers shaper.....J. Greenleaf
Truck and frame. Combined railway car.....W. H. Didlake
Truck attachment. Hand.....H. L. Myers
Trumpet. Carriage.....W. F. Schmeltz
Trunk.....L. Lieberman
Tumbling barrel.....J. R. Rusby
Turbine.....G. Cuthbert et al
Turbine. Compound steam.....H. F. Fullagar et al
Turbine. Steam.....W. L. Pope
Turbine. Steam.....A. C. E. Rateau et al
Type machine adjusting or centering mechanism.....J. S. Bancroft
Type machine die case transposing mechanism.....J. M. Dove et al
Type setting and distributing machine.....L. S. Campbell
Type writer.....G. W. Winters
Type writing machine.....L. S. Burridge
Umbrella carrier.....C. C. Pogue
Umbrella. Folding.....C. P. Funk
Umbrella geat.....C. B. Baldwin et al
Umbrella rib.....S. S. Fretz et al
Valve.....J. J. Dunwoody et al
Vegetable cutter.....D. J. O'Keefe
Vehicle.....E. Pearl
Vehicle antirattler.....F. E. Wilcox et al
Vehicle wheel.....E. L. Perry
Vehicle wheel.....G. S. Ogilvie
Vehicles. Power installation for self propelled.....P. H. Batten
Vending apparatus. Automatic.....R. E. Payne
Vending machine.....W. M. Mack
Vessel. Packing.....C. M. Brown
Wagon brake.....J. M. Webb
Wagon. Dumping.....W. S. Livengood
Wall construction.....J. A. Ferguson
Warp beam.....C. Taubert
Washing machine.....H. Lindstrom
Watch protector.....E. V. Phillips
Water column.....N. P. Fenner, Jr
Water flood gate.....J. Hansen
Water gage.....J. O'Connor
Water heater. Electrical.....M. H. Shoenberg
Water tube boiler. Superheating.....J. P. Sneddon
Weighing machine. Automatic.....G. J. Hicks
Well system. Oil.....F. J. Moser
Well underreamer.....J. J. Brewster
Wells. Inducing a flow of oil from oil.....B. F. Gardner
Wheel.....F. Saxon
Wheel.....P. F. Hein
Wheel.....2 pats. R. S. Cutter
Wheel.....J. G. Stewart
Whip operating device.....W. Fahrney
Whip supporter.....J. D. Flanigan
Whips in sockets. Means for locking P. Boire
Window.....I. Fischer

Window closing device.....W. S. Doe
Window lock.....T. Padgett
Window screen. Metal.....S. W. Benson
Wire clamp and tightening device.....J. M. Sweet
Wires. Supporting bracket for messenger.....H. D. Stroud
Wood filler.....S. D. Kudysch
Wrench.....J. C. Reisinger
Wrench.....W. H. Leister
Wrench.....M. W. Brady

DESIGNS.

Advertising label.....W. J. Dietrich
Bottle.....C. W. Meinecke
Brush.....C. E. Thompson
Cabinet. Kitchen.....A. V. Dzubay
Glass. Plate.....T. J. Woodward
Pencil tip. Lead.....B. B. Goldsmith
Plate or dish.....2 pats. W. A. Pickard
Plate server.....O. T. Cushman
Register or ventilator top plate.....H. S. Hart
Sign. Cigar.....J. I. Comber
Sleigh.....C. R. Knapp
Smoking set.....L. Goodman
Stand.....C. J. Taylor
Stove.....F. Fieberger
Type. Font of.....G. L. Marsh
Work table.....J. B. Zink

Issued February 21, 1905.

MECHANICAL PATENTS.

Accounting appliance. Credit P. A. McCaskey
Acetylene generator.....N. Goodyear
Adding machine attachment.....C. A. Swigart
Advertising device.....W. C. Carr
Agricultural implement blade.....W. J. Miles, Jr
Air brake handle.....W. W. Fuller
Air diffusing device. Electric.....T. Mahoney
Amalgam. Treating alkali-metal.....C. E. Baker et al
Amusement device.....F. B. Metzger
Asparagus cutter.....J. O. Bowden
Asphalt machinery.....F. B. Smith et al
Atomizer. Powder.....R. A. Oleshak
Attrition mill.....L. D. Colley
Attrition or other mills. Quick release device for.....J. Waldron
Auger dies. Double twist.....I. W. Smith
Automobile canopy.....W. F. Kramer
Automobile gear.....L. S. Chadwick
Automobile power transmission mechanism.....W. C. Baker
Awning fastener.....G. Schaefer
Axle lubricating device. Vehicle.....P. Le Sueur
Axle. Vehicle.....P. Le Sueur
Back band book.....A. J. McCord
Bag frames or other articles. Attachment for.....M. & A. Szinn
Bag mouth closure.....T. G. Palmer
Baking pan. Bread.....J. Z. Miller
Baling press.....W. O. Cumming
Barrel follower.....L. Laudenslager
Basket or crate. Folding.....A. O. Hubbard
Bearing. Ball.....F. M. Foote
Bearing. Roller.....F. P. Hinckley
Bed. Folding.....F. J. Hubbard
Bedstead canopy support.....I. E. Palmer
Bedstead. Metallic.....M. Mohr
Beehive cover.....E. R. Root
Beet digger or plow sulky.....L. A. Hatch
Bicycle or tricycle.....T. Ashburn
Binder.....H. R. Buntin
Binder lock. Loose leaf.....H. Wiedeman
Biscuit molding machine.....2 pats. C. E. Rhoades
Blanket. Sleeping.....C. M. W. Bickle
Blue burner.....L. Fellberg et al
Boiler and furnace. Combined.....A. Haigh et al
Boiler cleaner.....F. D. McMillan
Boiler tube cleaner and actuating means therefor.....W. L. Casaday
Book.....J. E. Upstone
Book attachment. Loose leaf.....F. Phoenix
Book. Manifold sales.....L. P. Hardy
Bottle.....C. F. Goddard
Bottle.....D. J. Higginbotham
Bottle. Non-refillable.....A. G. Lederer et al
Bottle. Non-refillable.....G. A. Hargreaves
Bottles, jars, &c. Metal closure for.....A. L. L. Weissenthanner
Brake.....H. F. von Hagel, Jr
Brake beam fulcrum block.....2 pats. R. P. Lamont
Brake shoe.....W. P. Taylor
Bread mixer and kneader.....J. F. Stevens
Brick, tile, &c. Composition for.....W. Maguire
Bricks, &c. Apparatus for handling.....W. P. Israel
Brush.....D. C. Pratt
Brush. Folding.....A. O. Craven
Brush. Screen.....J. Harris
Brush. Varnish.....D. C. Pratt et al
Bucket. Clam shell.....G. H. Williams
Buckle. Ornamental.....E. Bass
Burglar alarm.....G. R. Booth
Burglar alarm.....H. Blank
Burner.....L. B. & H. B. Webster
Button.....C. A. Murray
Cabinet. Shaving supplies.....J. F. Hind
Cable spinning apparatus.....W. Hildenbrand
Calendar indicator.....N. C. Garlough
Caus. Device for protecting fruit in.....T. T. Atkinson
Car brake.....J. B. Haug
Car construction. Freight.....F. Mathews
Car. Dump.....E. Saling
Car fender. Street.....W. O. Mundy
Car replacer.....J. Flynn
Car seat cushion.....E. G. Budd
Car seat frame.....B. F. Fortner
Car tandem spring draft rigging. Railway.....J. R. Mitchell
Car. Tramway or light railway.....E. A. Stanley
Carbureting apparatus.....J. N. Moehn
Carpet fabric. Woven.....C. C. Stewart
Cartridge.....J. T. Brayton
Cash register.....H. S. Hallwood
Caster.....W. C. Fischer
Cement mixer.....R. B. Coltrin
Cement, &c. Separator for separating water from.....L. Hatschek
Chandelier.....E. Witzemann
Check protector.....G. W. Beebe
Checkrein holder.....G. M. Atall

Chess or draughts board and chess or draughts man.....A. W. P. Livesey
Chest and throat protector. Combined.....B. A. Brown
Chute.....A. M. Acklin
Clasp.....F. Hirsch
Cloth pilers. Pneumatic tripping device for.....H. Smith
Cloth. Treating.....D. Gessner
Clothes wringer.....G. T. Willis
Clutch. Friction.....A. P. Olson
Coal washers. Automatic valve for.....W. M. Duncan
Cock for steam cylinders. Drain.....J. R. Dolph
Cock. Water gage.....C. M. Deem et al
Coffee pot.....T. B. Ferguson
Coin separator.....W. L. Decker
Composition of matter for filling the grooves of metallic plates, &c.....W. S. Lamson
Concentrating apparatus.....O. B. Perry
Concentrators. Actuating mechanism for.....A. R. Wiley
Concrete building block.....G. L. Peabody
Concrete metal construction.....W. H. Roney
Conveyer truck.....J. M. Culver
Cooker. Horizontal rotary.....J. Baker
Coop. Folding.....T. D. Young
Cord holder.....J. M. J. Ness
Corn husking machine.....J. Kaurzinsky
Corset.....J. C. Andrews
Coupling.....L. Williams et al
Cuff holder.....P. Todd
Cupola charging device.....C. R. Knapp et al
Current motor. Alternating.....R. Lundell
Current rectifier. Alternating.....W. B. Churcher
Curtain or shade holder.....G. H. Forsyth
Curtain pole.....J. Kroder
Cut off device. Automatic.....I. E. Weil
Cut out box. Portable.....A. T. & J. H. Kliegl
Cutting mechanism.....O. Tyberg
Cycle spring handle-bar.....R. Westermann
Dash pot.....H. J. Fischer
Dental root impression and swaging instrument.....A. M. Starbuck
Display device. Furniture.....J. Salomon
Display rack. Knockdown.....F. N. Dewey
Distillation of wood or the like. Apparatus for the.....T. A. Dungan
Distilling apparatus.....J. I. Pittman
Door check.....P. Fraser
Door. Emergency.....I. Belair
Dough rolling machine.....E. I. Rendleman
Draft appliance.....F. A. Gerling
Draft equalizer.....W. L. G. Schneider et al
Draft equalizer.....E. F. Donnerwirth
Draft gear. Cushioning.....E. Hopkinson
Draft rigging.....A. C. McCord
Drilling rope socket. Ratchet swivel.....J. & P. R. Kunny et al
Driving mechanism.....F. L. Eager
Drying kiln.....J. H. Regan
Dye and making same. Orange sulfur R. Gley
Electric coupling.....E. F. Ruth
Electric engine. Reciprocating.....B. O. Wagner
Electric furnace.....J. M. Morehead
Electric machine. Dynamo.....B. A. Behrend
Electric machines. Winding for dynamo.....B. A. Behrend et al
Electric motor. Reciprocating.....L. Casper
Electric signaling apparatus. Switch for selective.....C. M. Jacobs et al
Electric terminal clip.....D. B. Mills
Electric thermo alarm.....P. C. Howe
Electrical circuit protector.....C. A. Roife
Electrical control system.....E. R. Carichoff
Electrical protector.....C. A. Roife
Electricity meter.....H. T. Harrison
Elevator safety device.....T. W. Jenkins
Ellipsograph.....H. C. Barnes
End gate construction.....S. S. Bolton
Engine sparking igniter. Explosive.....A. E. Taylor
Engine speed regulator. Explosion.....E. Martignoni
Engine speed regulator. Explosive.....C. R. Daellenbach
Engine transmission and reversing device.....N. P. J. Herby
Excavating, hoisting and conveying bucket.....J. Marousch
Explosive engine.....A. G. & C. R. Daellenbach
Fan. Electric.....A. F. Becker
Farm gate.....C. A. Flowers
Fastening device.....C. S. Nonnemacher
Fat skinning machine.....C. G. Schmidt et al
Fatty edible preparation.....J. E. Bloom
Feed water. Heating.....A. Stewart
Fence machine. Wire.....W. L. D. Lakey
Fence post.....J. F. Martin
Fence post.....A. D. Benham
Fence wire pliers.....R. D. Morgan
Ferrule.....J. E. Baker
File, &c. Letter.....H. Schuckar
Filler tip.....W. M. Fowler
Filter and cleaner therefor.....L. Dion
Finger ring guard.....M. V. Hayes
Fire escape.....C. E. West
Fire escape.....D. G. McClay
Fire extinguisher.....R. G. Sip
Fire protective apparatus.....S. Erb et al
Fireproof building construction.....C. M. Depew et al
Fireproof stair cutter.....M. E. Hultquist
Fish hook.....B. F. Flegel
Fish line reel.....C. Stolhandske
Fish roaster.....C. W. Breeding
Fishing pole. Automatic.....D. F. Ball
Flier.....H. Spence
Fly expander.....J. F. Brown et al
Fly paper device. Sticky.....J. B. Foote
Fly paper holder.....J. O. Maddux
Folder.....S. R. Coleman
Folding table.....A. N. Fogue
Forge.....H. Price
Foundry or casting plant.....J. W. Henderson
Fruit pitter.....A. F. Biehler
Fuel.....S. P. Sadtler
Furnace.....2 pats. H. A. Poppenhusen
Furnaces. Smelting ores in blast.....J. E. Johnson, Jr
Garment pad.....G. Goldman
Gas burner. Incandescent.....W. S. Proskey
Gas burner support.....F. De Freitas
Gas generator. Acetylene.....W. L. H. Sims
Gas generator. Acetylene.....O. F. Rhoads
Gas generator. Acetylene.....N. Goodyear
Gas generator. Acetylene.....A. C. Einstein
Gas valve. Compressed.....A. B. Cox, Jr
Gasket.....J. Earley et al
Gearing.....G. T. Turner

Glass. Bending plate.....V. Kinom
Glass pressing apparatus.....J. O. Johnson
Glove or mitten.....J. D. Ouellette
Go-cart. Folding.....E. L. Thompson
Gold quartz mills clean. Attachment for keeping screens in.....C. G. Lidman
Golf club.....A. L. Emens
Grain scouring apparatus.....W. J. Booth
Grinding machine.....J. K. Stewart
Grinding mill turbines. Means for regulating the velocity of rotation of.....N. Pedersen
Guiding device.....A. N. Andersen et al
Gun. Breakdown.....L. H. Cobb
Gun lock.....B. L. Cleveland
Gun sight.....J. Y. Bassell et al
Gutters. Corner piece for hanging H. C. Hames
Hame attachment.....A. Herberlin
Hand press. Transfer cylinder.....A. J. Ford
Handle making machine.....D. L. Eustice
Harvester attachment.....M. T. Harris
Hat making machine.....M. A. Cuming
Heating systems. Pressure governor for hot water.....J. P. Sinclair
Heddle frame hook.....J. Kaufmann
Hermetical joints or coating receptacles. Making.....L. Le Goupil
Hinge. Cracker box.....F. Westerbeck
Hinge for window shutters.....T. F. Dwyer
Horse controlling device.....J. B. Morony
Horse releaser.....A. J. H. Grillo
Horseshoe attachment.....M. F. Ellis
Horseshoer's leveling gage.....H. D. Blakeslee
Hose clamping tool.....R. P. Decker et al
Hotbeds. Means for heating A. & C. De Meyere
Hot water boiler and heater.....L. Pfingst
Hydraulic lift.....G. F. Cluff
Igniting plug. Electric.....G. H. Oakes
Impact motor.....reissue. E. Huber
Incandescent burner cap.....J. E. Truckses
Incubator.....W. S. Small
Indexes. Follower block for card.....T. Suters
Indicator.....D. F. Broderick
Induction or spark coils. Vibrator for.....A. A. Kent
Insole.....H. N. Spaulding
Insulated step joint.....G. A. Weber
Insulating electric conductors. Machine for.....C. H. Hawkins
Insulator.....E. C. Wright
Insulator. Locking.....L. Steinberger
Insulator support.....L. Steinberger
Internal combustion engine.....J. A. Arthur
Internal combustion engine. Two cycle.....A. Hardt
Ironing machine.....W. J. Asher
Jar, &c. closure.....J. Graves
Journal lubricator.....E. McCoy
Jugs, basins, jars, &c. Appliance for attaching covers to.....S. Hall
Knitting machine needle protector.....F. B. Wildman
Knitting machine. Rib.....H. Swinglehurst
Knitting machine take up mechanism.....R. W. Scott
Ladder. Aerial.....reissue. F. S. Seagrave
Ladder attachment.....C. V. Friend
Ladder. Extension.....F. R. Lewis
Lamp. Gasolene.....M. Jackson
Lamp. Incandescent gas H. M. H. Delamarre
Lamp. Liquid fuel burning incandescent.....J. Danischewski
Lamp socket. Incandescent.....N. Marshall
Lamp. Vapor.....W. P. Warren
Lard press.....E. P. Geib
Last block.....J. T. Brown
Last parts. Forming.....J. T. Brown
Last Thimble.....F. E. Benton
Lead pipe for steam of high pressure F. Briefs
Leather polishing machine.....H. Hochgesand
Lemon squeezer.....P. McGrath
Lens mount lock brace.....F. F. Wade
Lever mechanism.....L. Gransac
Limb. Artificial.....J. E. Seeley
Line adjuster.....W. E. Kincald
Line locking out system. Multiparty.....G. Babcock
Liquid fuel furnace.....A. Ciszewski
Liquids with gases. Apparatus for charging.....W. P. Rice
Lock.....G. W. Abernethy.
Lock dial and knob. Permutation.....R. C. Lewis
Loom filling fork mechanism.....A. E. Benson
Loom let-off mechanism.....C. H. Draper
Loom picker stop motion.....A. Dont
Loom protector mechanism.....H. Cote
Loom shuttle box lock.....W. H. Royal et al
Loom shuttle box operating mechanism.....J. T. Meats
Loom shuttle check motion.....C. F. Lafrance
Loom warp stop motion.....2 pats. A. Schouler
Loom warp stop motion.....J. T. Meats
Looms for weaving tufted fabrics. Spool frame for.....J. P. Humphries
Lubricating device.....L. S. Clarke
Lubricator.....G. Enrico
Lubricator.....J. Trotter
Magnetizing apparatus.....J. B. Sherwin
Match dipping conveyer.....J. L. Montgomey
Match making machine.....H. C. Trcup
Matrices. Duplicating.....G. K. Cheney
Measuring and charging device. Coal.....J. B. Ladd
Measuring device. Skirt.....J. Shapiro
Mechanical movement.....F. C. Zumdahl
Metal chair. Revolving.....J. F. L. Uhl
Metal. Cylinder for treating heated.....J. W. Mosher
Metal, paper, &c. Machine for slitting sheets of.....A. F. Madden
Metal planing machine.....H. Robinson
Milk. Evaporated.....L. P. Britt
Mine gate. Automatic.....J. A. Joyce
Mirror support.....C. G. Olson
Motor control system.....M. Milch
Mower. Lawn.....A. P. Wistborg
Mower. Lawn.....D. R. & W. H. Sachman
Nut lock.....J. C. & J. Dent, Sr. & Jr
Nut lock.....J. A. McKinnon et al
Nut lock.....W. Case
Nut lock.....H. M. Cooley
Nut Lock.....F. P. Vaughan
Nut lock. Safety.....L. D. Frenot
Oil can.....J. M. Baker
Oil feeder.....H. W. Willis et al
Oils for edible or other purposes. Preparing.....J. E. Bloom
Optometer.....E. A. Moore

Ordinance. Breech loading... J. J. Knapp et al
 Ordnance. Combined breech mechanism and
 recoil checking device for breech loading...
 S. N. McClean
 Ore concentrator... M. E. Parks
 Ore crusher... F. P. Snow
 Oven. Bake... B. Meyer
 Oxygen separating process... J. E. Johnson, Jr
 Packaging machine... E. T. Pollard
 Padlock. Permutation... W. L. Stone
 Pail. Dinner... A. Prenatt
 Painter's or paper hanger's roller... W. Fortier
 Painting machine. Wheel... J. Heinz
 Paper bag machine... E. E. Claussen et al
 Paper box. Knockdown... A. Wildmann
 Paper. Manufacturing chemical pulp for...
 R. Roe, Jr
 Paper serving device... R. T. Jones
 Paper tubes. Forming... J. H. White
 Paring knife and gage... J. F. Lamb
 Paring machine. Potato... A. Imm
 Pasteurizer... W. I. Ruff
 Piling. Interlocking metal sheet... G. E. Nye
 Pin... 2 pats... S. Dancyger
 Pin tongue... G. W. Dover
 Pinions and wheels. Machine for manufact-
 uring and mounting... A. H. Neureuther
 Pipe connection. Fluid supply... T. James
 Pipe supporting device... E. M. Fell
 Pitchfork. Interlocking metal sheet... A. D. Salsman
 Pitchforks. Blank for forming...
 C. K. Jansen et al
 Placer washer... E. Z. Kidd
 Placket fastener and skirt supporter combined...
 E. C. Lewis
 Planter... C. P. A. Friberg
 Planter and fertilizer distributor... R. L. Woodruff
 Plaque. Metal... H. L. Beach
 Plastic block molding machine... J. M. McDowell
 Plastic material. Machine for forming build-
 ing blocks from... H. J. Buchanan
 Plug. Attachment... H. Hubbell
 Pneumatic despatch apparatus... C. F. Stoddard
 Potato digger... J. A. Buck
 Powders or the like. Dividing apparatus for...
 A. Darvas
 Power press... H. M. Lucas
 Power transmission device... W. T. Magruder
 Printing machine delivery mechanism...
 O. Roesen
 Proportioning machine. Automatic... H. Ericsson
 Pruning hook... F. D. Snyder
 Pulley gear mechanism. Expandable... C. J. Reed
 Pulley. Reversible automatic friction clutch...
 D. Davidson et al
 Pulley rim section. Expandable... C. J. Reed
 Pump. Oil... T. L. & T. J. Sturtevant
 Purse... A. K. Gibson
 Puzzle key ring... I. T. Alvord
 Race starter... J. J. Connelly
 Radiator attachment... E. L. Botts
 Radiator foot rest. Adjustable... H. E. Jennison
 Railway. Electric... 2 pats... J. Deia Mar
 Railway foot guard... W. Frost et al
 Railway Gravity... E. P. Day
 Railway rail splice nut lock... W. H. Bryan et al
 Railway rail stav... H. H. Sporenburg
 Railway signaling apparatus. Electric...
 T. H. Traylor
 Railway track gage, adjuster and holder...
 D. T. Dewalt
 Rake tooth clip... L. L. Lautner et al
 Receptacle. Deposit... J. J. Dennis
 Recoil mechanism... R. P. Stout
 Reed and making it. Artificial... H. B. Morris
 Refrigerating apparatus... J. F. Wittemann
 Refrigerator... F. V. Detwiler
 Refrigerator for clams or other crustacean
 foods... A. Moore
 Rheostat... H. L. Van Valkenburg
 Rice grading and separating means...
 D. J. Hayes
 Rig flange... S. F. Field
 Rock drill... C. G. Foote
 Rosin. Producing... G. P. Craighill
 Rotary engine... R. L. Leach
 Rotary exosive engine... C. R. Twitchell
 Rubbing or polishing machine... C. S. Yarnell
 Safety or restraining device... M. E. McCalmont
 Sand blast apparatus... J. D. Murray
 Sand handling apparatus... W. T. Patterson
 2 pats... R. L. Lockerbie
 Sash balancer... F. H. Ward
 Sash fastener... I. G. French
 Sash lock... D. G. Bolton
 Scale. Weighing... M. A. Sweet
 Screw driver... M. D. Converse
 Seal. Car... C. Kachel
 Seal. Milk bottle... 2 pats... L. A. Foote
 Sealing and labeling cap for preserve jars...
 M. L. Curran
 Sealing caps on vessels. Means for securing...
 J. M. Hicks
 Seed cleaners. Blast controlling device for...
 J. Harris
 Seed. Broadcast... L. E. Roby et al
 Seeding knife... J. O. Beckham
 Seeding machine furrow opener... J. L. Ashurst
 Sewer trap... E. Loughren
 Sewing machine bobbin case latch... E. L. Bowers
 Sewing machine. Button... T. O. Quist
 Sewing machine. Buttonhole... D. Mills
 Sewing machine tables. Cabinet work for...
 T. Kundtz
 Shade Window... J. E. Darby
 Shaft iron... J. G. Hutchens
 Sheet metal bodies. Apparatus for drawing...
 H. Schimmelbusch
 Ship repair mechanism... J. C. Hughes
 Show case... J. F. Weathers et al
 Shutter unlocking device... A. Ensor
 Sifter... H. K. Bender
 Sifter. Ash... P. F. Roy
 Sifting shovel... W. T. Johnson
 Signature or sheet gathering machines. Sucker
 device for... C. A. Juerges
 Skimmer... M. M. Argersinger
 Slack adjuster. Automatic... J. M. Hammond
 Slate working tool... W. W. & E. Burk
 Small arms. Recoil operated... P. Mauser
 Smelting refractory ores... E. F. Price
 Sofa fountain... C. H. Bangs
 Soldering aluminium... M. Tomellini
 Spectacles... J. W. Trulove
 Spool... F. B. Wood

Spoke mending, wheel-setting, and tire-tight-
 ening mold... E. Ryan
 Spout or gutter hanger... E. S. Bankerd
 Stacker. Hay... J. L. Roseberry
 Stake and stake holder... C. W. Smith
 Stamp. Hand... J. F. Robertson
 Station indicator... 2 pats... L. H. Simmons
 Steam boiler... J. Gemmell
 Steam boiler... T. T. Parker
 Steam engine... F. H. Ball
 Steam generator... C. P. Altmann
 Steam motor... W. Drompp
 Stencil sheet... M. J. D. Carter
 Stock for the ornamentation thereof. Machine
 for cutting... G. Knight
 Storage elevator... W. B. Harrison et al
 Stove gas burner. Cooking... J. F. Skoog
 Stove. Hot blast... F. L. White
 Stove lid lifter... L. A. Rockeilein
 Stove. Nursery... I. E. Moore
 Stove or range. Gas... T. B. Rice, Jr
 Strainer and valve. Combined... G. U. Merrill
 Strainer for wash or other basins...
 J. Lever
 Street or station indicator... H. L. Towler
 Street sweeper... H. M. Ramsay
 Sugar cleansing composition and making same...
 C. A. Spreckels et al
 Suit hanger... G. F. Cassidy
 Sulfids. Electrolytic process of reducing metal-
 lic... C. E. Baker et al
 Sun dial... S. M. Clarke
 Superoxids in alkaline solutions. Electrolytic
 production of... H. Rodman
 Surgical bandage cloth... E. Jagers
 Suspenders... J. L. Washneck et al
 Swimming device... A. Biedermann et al
 Table... P. S. Truxal
 Tack grip... F. Burns
 Tallying device. Work... J. H. Tift
 Tank... T. W. Snow
 Tank heating furnace... C. A. Newberry
 Tap. Automatic... C. Lewin
 Telegraph receiver and recorder... W. J. Roussel
 Telegraphic repeating apparatus... W. E. Athearn
 Telephone exchange. Automatic... N. E. Norstrom
 Telephone exchange system... 2 pats... H. G. Webster
 Telephone exchange system. Measured ser-
 vice... H. M. Crane
 Telephone receiver... W. Kalsling
 Telephone receiver. Hygienic... L. Steinberger
 Telephone switch... J. M. Beever
 Thermo electric signal... M. J. Schick
 Threshing machine cleaning attachment...
 J. Heazlett
 Time alarm. Electric... F. Hermance
 Tire casing... 2 pats... J. O. King
 Tire. Pneumatic... H. A. Palmer
 Tire protector. Pneumatic... F. Lapisse
 Tire. Vehicle... W. Langmuir
 Tires. Pump for inflating pneumatic...
 D. Rowe
 Tires upon wheel rims. Lever apparatus for
 mounting pneumatic... A. Michelin
 Tobacco pipes. Manufacturing... A. Augell
 Toe calk blank heating furnace... J. H. Vinton
 Tooth crown anchor... S. S. Bloom
 Toy roll saddle... J. E. Prest
 Toy... F. A. Neville et al
 Toy... W. Horrocks
 Toy or puzzle... C. S. Bissell
 Toy packing and supporting device... C. W. Beiser
 Trace... L. A. Wakefield
 Trach bed construction... F. M. Turner
 Traction wheel... F. A. Gerling
 Trains. Apparatus for making up...
 2 pats... W. J. Patterson
 Trolley... C. J. Sosenheimer
 Trousers presser... A. T. Knorzer
 Truck for use in transplanting trees...
 P. Bisset
 Trunk... H. Davis
 Tub or pail clamp... W. L. Bryant
 Tube making machine... T. Scherf
 Tubes. Machine for closing the bottom of col-
 lapsible... H. W. Herbst
 Turbine engine. Reversible marine... J. Scott
 Turbine. Steam... F. W. Flint
 Turbines. Packing and means for taking up
 thrust in... J. Stumpf
 Type setting machines. Apparatus for per-
 forming registering strips for... C. Rozar
 Typewriting machine... A. A. Vanderpool
 Typewriting machines or the like. Platen or
 roller for... T. F. Nollan
 Umbrella... F. Sorenson
 Universal coupling... H. C. Warren
 Valve... C. W. Kenner
 Valve... H. C. Kinnison
 Valve... W. C. Rife
 Valve actuating means... C. E. Hilton
 Valve actuating mechanism. Steam engine...
 T. Kitchen
 Valve gear. Explosive engine... C. R. & A. G. Daellenbach
 Valve operating mechanism... W. E. Allen et al
 Valve. Rotary... G. R. Elliott
 Valve. Tank... M. Reilly
 Valve wedge. Gate... R. Shirley
 Vapor burner. Incandescent... J. Hendy et al
 Varnish. Making... G. Tuschel
 Vault and vault door... T. W. Kerr
 Vehicle... R. N. Martz
 Vehicle brake... D. Berry
 Vehicle dumping apparatus... A. L. Young
 Vehicle. Horseless... P. Flucks
 Vehicle steering and controlling mechanism...
 L. S. Clarke
 Vehicle steering mechanism. Motor... N. M. Benson
 Vehicle wheel... C. R. Bohannon
 Vehicle wheel... W. S. Plummer
 Voting machine... F. R. Taisey
 Voting machine apparatus... F. R. Taisey
 Water winding and setting mechanism...
 F. Chevallat
 Water. Apparatus for separating oily or simi-
 lar impurities from... H. T. Davis et al
 Water closet attachment. Railway passenger
 coach... A. L. Lefever
 Water closet tank... reissue... J. G. Crosby
 Water heater... P. T. Lyons
 Water heater. Gas... D. J. F. Buck
 Water heating device... E. J. Roberts
 Water meter... E. H. McCreary et al

Waterway basin flushing system... W. S. Isham
 Watering trough. Automatic... C. Noteboom
 Weaner. Calf... W. H. Price
 Weather vane. Educational... E. Ames
 Weighing and packaging machine... F. G. Pennock
 Weighing machine. Automatic... E. H. Richardson
 Well drilling machine... L. D. Shryock
 Wells. Device for use in drilling or cleaning
 out... N. H. Bowlby
 Wheel... H. T. Dunbar
 Wheel... E. C. Madden
 Whip... F. E. Cowles
 Whistle... A. F. Kuhl
 Winding machine. Cord... C. E. Dailey
 Winding or other machines. Web tension de-
 vice for web... J. P. Jefferis
 Windlass operating mechanism... G. Gray
 Windmill... H. P. Winn
 Windmill. Horizontal... F. E. Gould
 Window... R. H. Leicht et al
 Window... A. Woelfel
 Window support and lock... E. A. Hornbostel, Jr
 Wire terminal or lug... G. A. Tower
 Wrench... F. R. McGovern
 Wrench... M. E. Porter
 Wrench... E. J. J. Gregerson
 Yoke clip. Neck... W. Bishop

Canadian Patents.

Canadian Patents may now be obtained by
 the inventors for any of the mechanical inven-
 tions named in the foregoing list, provided
 they are simple, at a cost of \$30 each. If
 complicated the cost will be a little more.
 For full instructions address Inventive Age
 Publishing Co., 918 F Street N. W., Washing-
 ton, D. C.

Foreign patents may also be obtained in cer-
 tain other countries.

FREE! Send us 2 cents to
 pay for postage and
 we will mail you a
 valuable copyrighted book, "How to obtain
 Patent, Caveat, Trade-Mark and Copyright
 Protection, with Decisions in Leading Pat-
 ent Cases" entirely free of charge. Address:
INVENTIVE AGE PUBLISHING COMPANY,
 (Dept. P.) WASHINGTON, D. C.

NEW BOOK.

Mechanical Appliances, Mechanical Movements
 and Novelties of Construction.

By GARDNER D. HISCOX, M. D.

400 Pages Bound in Cloth. 970 Illustrations.
 Price \$3.00.

The ten editions through which the
 first volume of "Mechanical Move-
 ments" has passed is more than a
 sufficient encouragement to warrant
 the publication of a second volume,
 more special in scope than the first,
 inasmuch as it deals with the peculiar
 requirements of various arts and
 manufactures, and more detailed in its
 explanations, because of the greater
 complexity of the machinery selected
 for illustration. Despite the greater
 simplicity of the devices which have
 been pictured and briefly explained in
 the first volume, the appliances de-
 scribed in this second volume can be
 just as easily understood, the text
 having been so worded that no in-
 superable difficulties are presented to
 the reader of average mechanical
 knowledge. More extensive though it
 may be than "Mechanical Move-
 ments," the present work by no means
 exhausts the subject. Many an appar-
 atus has been omitted, either because
 limitations of space have intervened,
 or because of the impossibility of se-
 curing adequate details of construc-
 tion. The machines incorporated,
 however, cover so vast a mechanical
 field and have been so carefully
 selected to supply the needs of the
 student seeking general information,
 that they will be found fairly repre-
 sentative of the power devices used in
 old and modern industries. Mechan-
 ical intelligence may well be deemed to
 have found its highest expression in
 the contrivances that are illustrated
 and described in these pages.

Although the author has not the
 slightest desire to encourage the hope-
 less pursuit of perpetual motion, he
 has, nevertheless, thought it advis-
 able to dwell at some length on the
 exceedingly ingenious means devised
 by misguided inventors in their en-
 deavors to solve an unsolvable prob-
 lem. The pages in which perpetual
 motion machines are described may
 induce those who still believe in reach-
 ing this *ignis fatuus* to bend their
 energies in causes more worthy of
 their zeal. Moreover, it may be that
 some of the mechanical movements
 which have been evolved by the per-
 petual motion inventor, although they
 may not attain the end sought by him,
 may still be applied with profit to his
 instruction in true mechanical prin-
 ciples, and to avoid the errors com-
 mitted in the search on the lines of
 this folly of past centuries. This in
 itself is a sufficient justification of the
 insertion in this volume of the section
 on perpetual motion.

We recommend this work most
 heartily to all inventors, patent
 attorneys, machinists, engineers, and
 all engaged in the study or practice of
 the mechanical arts.

The NORMAN W. HENLEY PUB. CO., Publishers,
 132 Nassau Street, New York, U. S. A.

INVEST

**\$1 to \$100 a Month in a
 Business (27 Years Old)
 Paying 15 Per Cent.**

Very unusual conditions make it possible for
 us to sell to old and new clients a limited
 number of shares (at par—\$10 a share) in a
 high-class business established in 1878.

It is the best known
 and most profitable
 business of its kind in
 the world.

You can buy one or
 more shares at \$10 a
 share. You may pay
 for your stock at the
 rate of \$1 a share per
 month.

The minute you get
 your certificate of
 stock your money will
 begin to earn the
 full 15 per cent. divi-
 dends. You will re-
 ceive your dividend
 money, amounting to
 5 per cent., every four
 months.

This is the most de-
 sirable kind of an in-
 vestment because, in
 addition to absolute
 safety and big divi-
 dends, you may sell
 your stock at any
 time. We will sell it
 for you. We feel sure
 that in a year's time
 this stock will be sell-
 ing at a premium of
 at least 50 per cent.
 That means that your
 money would earn, in-
 cluding the dividends,
 about 65 per cent. the first year. In another
 year we believe the dividends will be consid-
 erably larger, as the business is now being
 pushed faster than at any time before.

There is nothing speculative about this
 stock. It is stock in an industrial enterprise
 of the highest character. The company has

about 120,000
 regular cash
 customers—
 many in every
 county in the
 United States
 and hundreds
 more through-
 out Canada.
 The products
 of the company
 are as staple
 as wheat, and
 the continued

prosperity of the company is almost as cer-
 tain as the continued success of the United
 States government.

More than half of this block of treasury
 stock was subscribed for by local capitalists
 before our first advertisement appeared.

If you want to take advantage of the most
 remarkable and best investment opportunity
 offered to the public in many years, write at
 once (a postal will do) for our interesting
 free prospectus.

WELLS & CORBIN, Investment
 Brokers
 2132 Land Title Building, Philadelphia



F. C. Owen, President
 of the most remarkable
 company of its kind in
 the world. Answer this
 advertisement and learn
 more about him.

**WRITE FOR OUR
 FREE
 PROSPECTUS**

To Old And New Subscribers Alike.

One Year's Subscription to The INVENTIVE AGE & PATENT INDEX AND WEBSTER'S DICTIONARY (AS DESCRIBED,)

CARRIAGE CHARGES PREPAID,

BOTH FOR \$2.50

LESS THAN HALF THE PRICE OF THE DICTIONARY ALONE

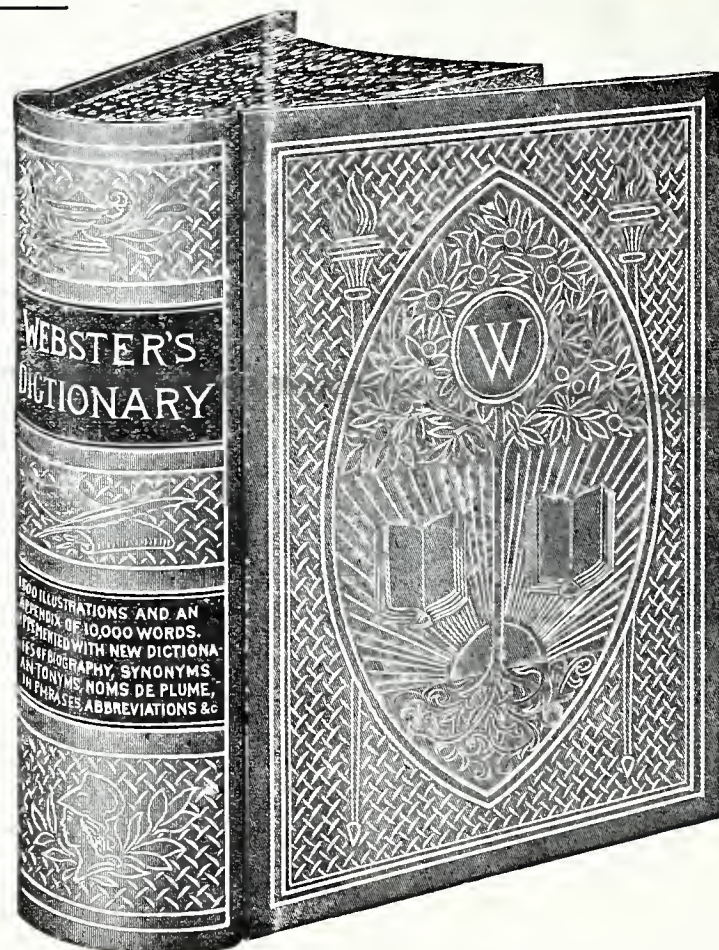
This Dictionary contains every word found in the original Webster's,

IN ADDITION

- | | |
|----------------------------------|---------------------------------|
| (a) An appendix of 10,000 words, | (g) Familiar Allusions, |
| (b) A dictionary of Biography, | (h) Musical Terms, |
| (c) Synonyms and Antonyms, | (i) Heroes of Prose and Poetry, |
| (d) Noms de Plume, | (j) Dictionary of Mythology, |
| (e) Foreign Phrases, | (k) Modern Geographical Names, |
| (f) Abbreviations, | (l) Latin Names, etc., etc. |

THIS IS A GREAT OPPORTUNITY.

Address: **THE INVENTIVE AGE PUBLISHING CO., WASHINGTON, D. C.**



1540 Pages; 1500 Illustrations; Full Library Sheep Binding; Dennison's Patent Index; Size, 4 x 9 x 10 Inches; Weight eight pounds.

A Remarkable Offer. The "POST" SELF-FILLING AND CLEANING FOUNTAIN PEN.



No Filler. No Soiled Fingers. No Lost Time. Simple and Perfect.

IT IS AWAY AHEAD OF ANY OTHER
PEN MANUFACTURED BECAUSE
OF ITS SELF-FILLING AND SELF-
CLEANING FEATURES.

BEING THE ONLY ONE MANU-
FACTURED HAVING THESE
CONVENIENCES.

We will send this famous pen, postpaid, and one year's subscription to "The Inventive Age," for \$2.00.

Every inventor in the country needs "The Inventive Age," and everyone needs a pen. Here's your chance to get a bargain.

There are many pens on the market, some have been sold for years and are very popular, but we venture to say that all the pens manufactured together have not such a list of recommendations as the "Post" has secured. We have testimonials that a million dollars could not buy. In the list will be found leading men in politics, finance, law, religious movements, literary men, bankers and business men. Men who have never before allowed their names to be used in this way have not hesitated to recommend the "Post" and in terms of praise simply unqualified. Send for list of testimonials.

Pen has gold nib. When ordering state whether a fine, medium or stub point is desired.

Address: **THE INVENTIVE AGE Publishing Co.**
918 F St. Northwest, Washington, D. C.

A New Premium Offer.

WOMAN'S HOME COMPANION.

This magazine is edited and made up in the city of New York, the leading literary and art center of America. It contains the most timely illustrated articles, the most beautiful illustrations, the best short stories, the most popular serial stories, the most practical household departments, the best of everything desirable for a home magazine. It is printed on the finest paper, has 44 to 60 large pages, 11 by 16 inches. The twelve numbers will contain more than one thousand beautiful illustrations. Each month it carries a message of help, profit, pleasure, education, culture and refinement to over two million readers. Its editors and contributors are the most popular American writers. It is altogether the cleanest, brightest, handsomest, choicest and best of the American home magazines.

WOMAN'S HOME COMPANION	One year \$1.00	A total value of
INVENTIVE AGE & PATENT INDEX	One year 1.00	
		\$2.00

BOTH PAPERS ONE YEAR TO ANY ADDRESS

FOR
ONLY **\$1.25**

The above offer applies to new subscriptions only. Send all orders to

THE INVENTIVE AGE PUBLISHING CO.
WASHINGTON, D. C.

A JOURNAL
OF MANUFACTURING
INDUSTRY

THE Inventive Edge AND PATENT INDEX.

AND SCIENTIFIC PROGRESS.

SEVENTEENTH YEAR.
No. 4.

WASHINGTON, D. C.--APRIL, 1905.

SINGLE COPIES 10 CENTS.
ONE DOLLAR A YEAR.

A RAILROAD ACROSS GREAT SALT LAKE.

By CHARLES ALMA BYERS.

ONE of the most remarkable engineering feats in railroading to be accomplished in the United States in recent years is that of the construction of a railroad across Great Salt Lake by the Southern Pacific Railroad Company. This road, known as the Ogden-Lucien cut off, was commenced in June, 1902, and has, it may be said, just been completed. The formal dedicatory exercises, however, were held on last Thanksgiving Day, when the last spike, made of solid gold, was driven by President E. H. Harriman, in the presence of about fifty of the most prominent railroad officials in the country. The work on the road since then has been only to fill in and to raise the embankment where it had settled lower than provision had been made for; and now heavily loaded freight trains may be seen crossing the lake daily. An interesting spectacle it is, too, to see a long train of cars crossing this inland sea; and to



TRESTLING ACROSS GREAT SALT LAKE FOR OGDEN-LUCIEN CUT-OFF.

tween New York and San Francisco is shortened by about eight hours. The changes made in the road, however, are confined entirely to that portion of it extending from Ogden, Utah, to Lucien, Nevada. The old line extended around the north arm of Great Salt Lake, while the new one cuts straight across. It is in this way that 102,91 miles, by exact measurement, has been made to take the place of 146,68 miles of old track. The cut-off therefore saves 43,77 miles, or cuts the length of the old road down by almost one-third.

In considering, however, the benefits resulting from the cut-off, a few things other than what has been saved in the way of miles must be taken note of. The old road contained many sharp curves and steep grades, while the new one is comparatively straight and level. This alone would result in cutting down considerably the time required to make the trip between the two



EMBANKMENT WORK FOR CUT-OFF ACROSS GREAT SALT LAKE.



ROAD COMPLETED, SHOWING TRESTLING AND TRACK.

the passenger, in crossing the lake, it seems indeed as a peculiar sensation that he has really "gone to sea" in a Pullman. For a short time the train

passes entirely out of sight of land, and from either window can only be seen the glistening and wavy surface of the great dead sea of America.

This cut-off is on the main line of the Southern Pacific, which road is now included in the Harriman System, —and by it the old time schedule be-

places, and especially for heavily loaded freight trains. The sharpest curve in the new line is 1 1-2 degrees, while in the old it was 10 degrees; or,

for the whole distance, the total curvature saved is 3,919 degrees. The steepest grade in the cut-off road amounts to 21 feet in the mile, while in the old one there were grades that equaled 90 feet to the mile; or the total vertical of grade saved by the cut-off for the whole distance is 1,515 feet.

The cost of constructing this road, considering its length, was enormous. The sum of money expended upon it will lack only a few thousand dollars of reaching the five million dollar mark; or the average cost per mile will be something over \$45,000. When one takes into consideration, however, what the elimination of this trackage from overland traffic will save in way of actual operating expenses every year, the wisdom of constructing the cut-off, even at this enormous cost, becomes easily discernible. It is estimated that the savings will average about \$1,500 a day, or over \$500,000 a year. At this rate, it will take less than ten years to save in operating expenses enough to pay for the entire work of construction.

As an engineering feat this cut-off is of special interest. It contains the largest continuous piece of trestling work in the world. In fact, there is no other piece anywhere that comes within what may be considered of sufficient importance as to be worthy of use in a comparison. By actual measurement there are 22.94 miles of trestling and 11.84 miles temporary. The latter is to be replaced by embankment work; and it is even possible that at some time in the future, the former will be also. This however, will prove to be no easy task, for nearly all of it is in water from 30 to 34 feet deep; and as the average height of the track above water is almost 20 feet, a fill-in of about 50 feet would be required to build the embankment.

The driving of the piles for the trestling proved a tremendous work, and vast indeed was the amount of materials used. The exact number of piles driven was 38,256—each of which represented a whole tree from either Texas or Oregon. These piles, if placed end to end, would make a solid string 2,824,723 feet in length—or cover a distance of over 500 miles. In addition to the piles used, there were also large quantities of other materials consumed, such as timber for stringers and lumber and iron for braces.

Work was commenced on the road simultaneously at each end and advanced both east and west, the two crews meeting at the finish near the centre of the lake. A large force of men was continually employed, and all the modern machinery intended for such work was made use of. During the last six months, in order to finish by a certain day, work was pushed night and day, and in a single week a fraction over a mile of trestling was built. During the most of this time 3,000 men were employed, and the machinery made use of by them consisted of 300 outfit cars, 26 large locomotives, 300 dump cars of 70 tons capacity each, 5 huge steam shovels of a scooping capacity of 7 tons of

earth each at a single stroke, and a fair sized fleet of tugs and boats to tow and haul material about the lake.

In addition to these things the outfit also included several large tank-car trains, which were kept running night and day to supply the fresh water required for various purposes. This alone proved a great undertaking. The daily consumption of water by the locomotives and the army of workmen and for cooking, washing, etc., on an average amounted to about 420,000 gallons, and as this had to be fresh, while that of the lake is salty, it had to be hauled, much of it 80 miles and some as far as 130 miles.

The building of the embankment work, where the water of the lake was not deep enough to necessitate trestling, was also a colossal task. On an average 400 car loads of gravel and rock were dumped into the lake daily. It was for loading these cars that the steam shovels were used, and to do so they were kept running day and night. The pit from which this gravel was excavated is more than three miles long and 30 feet deep.

Most trestling work through water can be relied upon to last, comparatively, only a few years. This would seem to indicate that the line across Great Salt Lake will be almost continually demanding repair. A condition exists here, however, that does not elsewhere. Salt water soon forms an incrustation over either wood or iron which serves as an excellent protection, preventing the former from decaying and the latter from corroding. In fact, wood is preserved by salt water almost indefinitely, and especially so since it contains none of those dreaded torados found in fresh water. This incrustation formed over wood and iron by salt water, besides serving as a protection, is also ornamental, and already the trestling work of this cut-off road is increased in a crystallization equal in effect and enduring qualities to a thick coat of snow white paint.

Branding by Electricity.

David C. Sprecher, of Kansas City, Kansas, has patented an improved Electric Branding Apparatus, a one-half interest in which he has assigned to John E. Doran, of Kansas City, Mo.

The object of the invention is to produce a simple, portable apparatus of this character whereby a clean and clear cut brand may be made upon hams, bacon, and other meat and substances, without seriously affecting the same and with either a low or high voltage. In the embodiment of the apparatus, a pair of conductors are employed, and a switch for making and breaking a circuit through these conductors. A rheostat is in circuit with one of the conductors, and an electric fuse is also in circuit with one of the conductors. An electrode is located at one end of one of the conductors, and a movable electrode is electrically connected to one end of the other conductor. This movable electrode is in the form of a branding-iron, having its contact surface of materially less area than the first-named electrode.

NOVEL MECHANISM FOR THE PROPULSION OF AIR SHIPS.

By DR. ALFRED GRADENWITZ.

IN a recent number of the *Scientific American* the writer described a flying machine imitating the soaring flight of birds and being driven by an ordinary motor-propelled screw. Now Mr. Victor Hanisch, of Vienna, quite lately presented to the Association of Austrian Engineers and Architects a model of a machine imitating the movement of bird wings, and being suitable for the propulsion of similar flyers. The scheme is, however, susceptible of a more general application, and may be used for propulsion in any kind of elastic medium and for driving ships as well.

Mr. Hanisch bases his ideas on the observation that whenever an animal utilizes its force for obtaining a lasting effect, the process is an intermittent one, the muscles being first strongly contracted, thus using simultaneously the whole of the available power. By this stroke the muscles

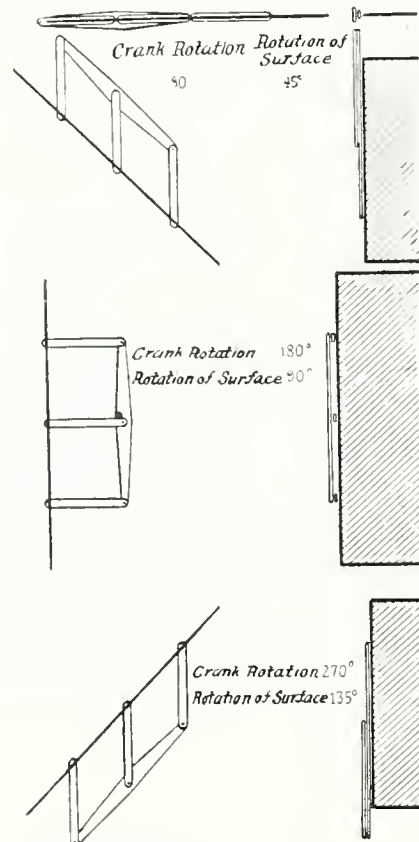


Fig 1. Main Positions of Propulsion Mechanism

obviously undergo a certain consumption of matter, which, in the interval elapsing between any two strokes, is compensated for by the blood. The blood carries away the used up substances, replacing them in the muscular fibres by fresh matter ready for use. This applies to the swimming of fishes and the flight of birds; nor does man escape this rule, his muscles being always used at intervals, though the intermediate periods of rest be short.

Now on the other hand all existing engines aim at a utilization of power as continuous as possible, to reduce the wear and tear, and to save time. The case of engines serving for the propulsion of masses in a medium such as air or water is, however, quite different; and it would be rather advantageous in that case to have a means to obtain a higher speed of the striking surfaces without a corresponding increase in the horsepower of the motor.

Mr. Hanisch starts from the fact

that the resistance undergone by a moving surface in an elastic medium increases practically with the square of the speed. The question would

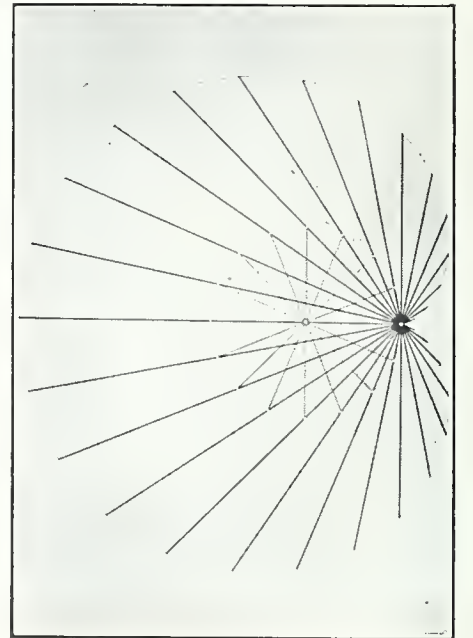


FIG. 2.

therefore be to construct an apparatus imparting to a surface at certain moments a higher speed than would correspond to the average output of the motor in the case of a constant utilization. In the instances above referred to, the moving surfaces after having performed a stroke which imparts a certain speed to the moving mass, are reduced at a lower speed into the initial position, and this operation on account of the lower speed results only in a small loss of energy.

In the outfit designed by Mr. Hanisch, the surfaces performing strokes against the elastic medium are brought back to their old position, to render another stroke possible without the work done by the motor being converted into the opposite work. The driving motor performs a continuous motion, viz. a rotation, which has to be converted into surface strokes. After each stroke executed against the elastic medium, ensues an interval occupied by the transferring of the wing surfaces into the position

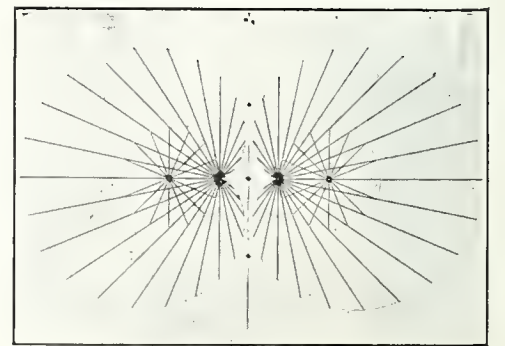
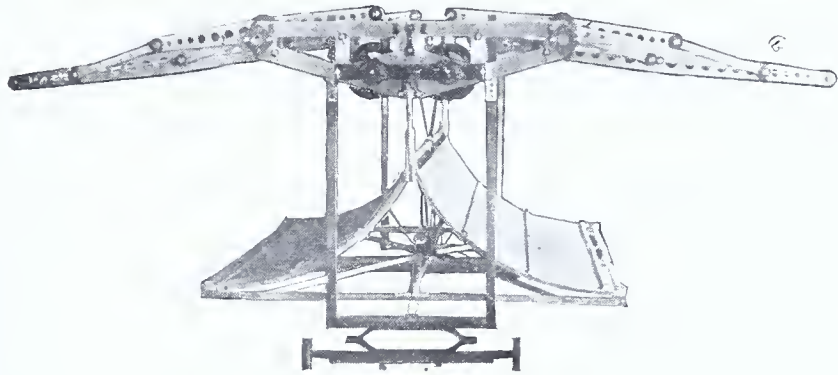


FIG. 3.

necessary for another stroke. During this much smaller performance, the rotating parts may be given an accelerated movement, which, in conjunction with the continually acting force of the engine, will impart to the wing surfaces a higher speed than in the event of a continual utilization of

force, thus storing power during the intervals of rest as in the case of the muscle.

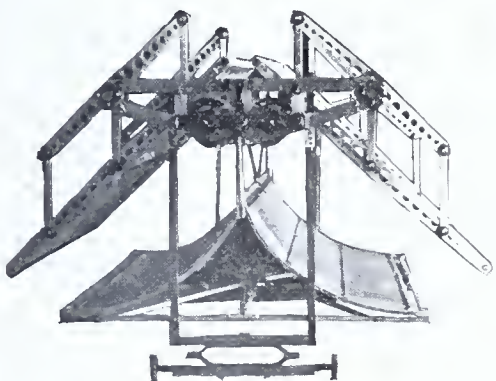
To the moving surface is attached in its centre the free end of a crank, and by means of a balance, or by any other contrivance, the surface is moved round its centre by just half of the angle described by the crank in the same time. This is illustrated in Fig. 1, where the initial and some of the subsequent positions of the system are represented. After the crank has



A.

moved downwards through an angle of 90° , the surface has turned by 45° , so as to occupy the second position shown in the figure: and after the crank has returned to its initial position, that is, has traversed an angle of 360° , the surface has been rotated by 180° , that is to say, has been turned upside down, so that the rotation can begin anew.

Mr. Hanisch shows that taking any desired position of the system, the projection of the surface always passes through the same point, viz. through the terminal point of the main crank after a rotation of 180° . This point is the joint of the moving wing, while the forces are made to act on the central point of the wing

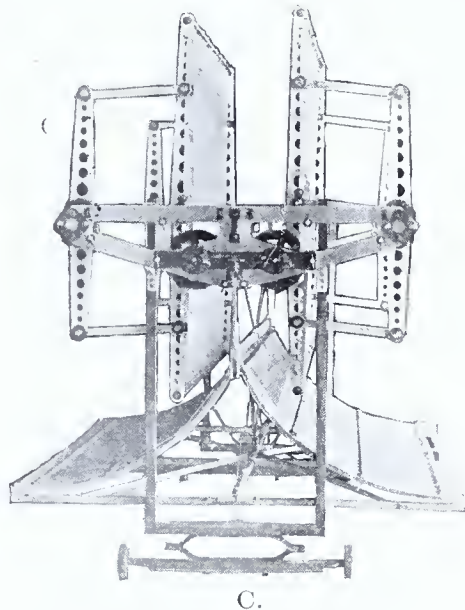


B.

and not on this joint, which greatly augments the safety of action of the outfit. In Fig. 2 is shown the curve of the terminal points of the surface projections for a number of intermediate positions. Analysis shows these curves to be epicycloids, that is to say, rolling curves of circles on circles. If the ratio of the length of crank to the breadth of the surface be 1:4, the surface projection touches the point above referred to just in its extreme position, this case being represented in the figure. Now two such surfaces (see Fig. 3.) are made to act one beside the other, so that the components of the two resistance effects have at any moment the same direction, while the action of the two surfaces is always perfectly symmetrical with respect to the direction of stroke required. It is suitable to fit the sur-

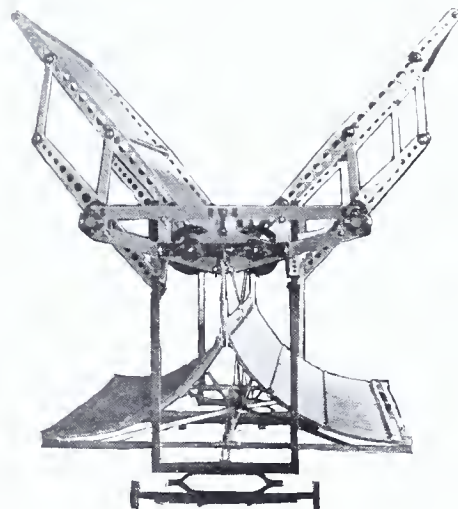
faces at each end with a similar crank, to avoid any deflection in the bearings, or excessive rigidity in the construction of the surfaces. The four crank-balance systems should have a perfectly guided mutual connection, so that the motion is symmetrical. The resisting forces in the surfaces which are not utilized to advantage are not very considerable, being arranged round the axle of rotation, where the speed (to the square of which the resistance is mainly proportional) are

smallest. In the vertical and in the adjoining position, the resistances of the elastic medium are much smaller than in the position occupied by the



C.

surface in the neighborhood of greatest span. When, however, the resistances become smaller, the constantly acting force of the engine will accelerate the motion, so that in the rotating parts, in the shape of inertia of rotating masses, a capacity of work is stored, which, in conjunction with the



D.

continually acting force of the engine, imparts to the moving surfaces in the vicinity of greatest span a higher speed than would be possible in the

case of a continually acting engine.

The inventor has constructed two models, 1.045 and 4.3 kgs in weight respectively, which both rise intermittently in a vertical direction on the wings being driven by a spring mechanism. Figures A, B, C, D, represent the model in the various positions illustrated in Figure 1.

It would be preferable to cause the apparatus to rise in an oblique direction, as most birds do, which have not sufficient force to rise vertically without the aid of air currents.

This propulsion mechanism could be employed in the place of a screw in kite flyers, steerable balloons and even snips. For the propulsion of ships it would be convenient to simplify the apparatus by designing the crank as a frame, where an axle is located, to both ends of which a conical wheel is fitted. The conical wheel placed at the driven end of the crank runs on a stationary wheel, so that the rotation of the axis is transmitted by the other wheel of the crank to the surface to be driven by means of another toothed wheel attached to the same, just at half the angular speed of the crank.

The Electric Furnace.

The Carnegie Institution of Washington has recently made a grant of \$2,500 to Professor Burgess, electrochemist of the University of Wisconsin, to aid in investigating the properties of pure iron and its alloys. During the past few years Professor Burgess has developed a method of producing iron electrolytically of a very high degree of purity, in a manner similar to that employed in the refining of copper. Previous to this work, pure iron has been obtained only in small quantities and at excessive cost, but Professor Burgess is now able to produce comparatively large quantities at a small cost, using for this purpose a cheap quality of steel. This product, when carefully analyzed, does not appear to contain any foreign element except hydrogen, which can be readily expelled by heat. Already, there is a considerable demand for this iron for scientific purposes, and about half a ton has been made.

This discovery will add another to the new industries that have developed to convert metals into novel commercial forms. A few years ago, the products of the electric furnace were intended only for laboratory consumption; today, companies are continually being organized to manufacture these products for commercial purposes.

The making of carborundum and calcium carbide in the electro-chemical industries, for instance, has progressed rapidly. Heavy investments have been made in the furnaces and plants, and the output of the factories is steadily increasing. The consumption of carborundum in the steel industry alone amounts to about 75 tons a month; and it is taking the place of emery and ferro-silican in nearly all lines. The manufacture of calcium carbide constitutes an industry even more important, the output last year being double that of the previous 12 months.

Artificial graphite is another valuable product of the electric furnace. A nearly pure graphite, containing

only one-tenth of one per cent of ash, is made in large bulk in the factories. A granular graphite, suitable for various lubricating purposes, is produced in the electric furnace by what is technically known as the graphitization of anthracite coal. The process has enabled manufacturers to obtain a common form of cheap graphite, which is available for many uses heretofore denied by reason of its relatively high cost. There are now made by the new processes about 3,000,000 pounds of graphite a year, and the material is more extensively employed than ever before in the various trades and industries.

The manufacture of artificial aluminum has also attained great importance, through the same process as that which has revolutionized the graphite industry. Both the chemical and the electrical processes of making aluminum are in vogue, and the output is so large that the product is more generally used than formerly in forty or fifty different industries.

One of the products obtained at a plant at Niagara Falls is sodium, which is made by electrolyzing fused caustic soda. The manufacture of sodium has, in turn, given a strong impetus to the production of caustic soda. The production of all caustic alkalies and chlorine by electrolysis has been an interesting problem for years, but the direct treatment of fused salt affords new studies in this line.

The manufacture of zinc by electricity affects the mining of this material, and extensive preparations are being made for mining on a large scale.

Other products of the electric furnace are manganese and phosphorus, in the manufacture of which great advances have been made in the last year or two.

The laboratories of Germany have for a long time rendered invaluable aid to her industries, but until a comparatively recent period, little attention has been given to this line of endeavor in the United States. Once convinced of its importance, however, American manufacturers have undertaken it with characteristic energy. The possibilities in this direction are beyond prediction, and chemists and inventors are busy striving to widen the field, and experimenting to the end that cheaper and more effective methods of manufacturing the metal products may be found. The work will seriously affect the mining country—not adversely, as might at first seem inevitable, for instead of limiting the mining of metals, the new processes of manufacture rather serve to stimulate it. Ores that have seemed worthless are suddenly converted into valuable products. The metal that in its crude form has always been thrown aside at the mine, is transformed into something of great commercial importance, or is refined by electricity so that it can be used in many different trades. Secret processes of worldwide value are being evolved in the electro-chemical laboratory, and in the crucible of the electric furnace new industries are constantly being cradled.

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the INVENTIVE AGE, which publishes a list of all patents issued each month, and the current decisions of the courts in patent, trade-mark and copyright matters. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

CLEVER NEW PATENTS.

Water Tube Boiler.—New Ax.—An Office Indicator.—New Door Hinge.

Water Tube Boiler.

One of the latest improvements in water tube boilers has been patented in this country by Messrs. Robert Hanson, Robert Henshall, and Arthur E. Boardman, all of Warrington, England. A patent has also been secured on the invention in Great Britain. The principal object has been to provide a boiler affording effective circulation of water and rapid

ing a steam dome, is located centrally above the before mentioned drums, and is connected to the upper drums by means of the large tubes *f*. The outlets from the furnace are at the sides thereof below the downtake pipes *e*. Thus, the products of combustion passing upwardly from the furnace, pass, first, the uptake pipes *c* and *d*, thence over the upper drums *a*, and downwardly alongside the downtake pipes *e*. As a result, heat is imparted to both sides of the lower water drums, to the uptake pipes, to the three upper drums, and to the downtake pipes, before the products of combustion pass from the boiler. Consequently, very little heat is lost, the steam in the uppermost drum is superheated, and, because of the curvature of the various pipes and of the walls, as shown, expansion and contraction can take place without deleteriously affecting the tubes and drums.

By arranging that the tubes *c d* cross each other and alternate in the manner shown, above the furnace, great heat is applied at this part, as the tubes thereby form a baffle. The tubes being curved provide for free expansion and contraction, and by their crossing diagonally immediately above the furnace, enable the hot gases to impinge against their surfaces during the passage through the central flue, while the provision of the return-tubes *e e* at the sides insures a complete circulation. The curved form of the tubes enables the ends to be rigidly secured to the upper and lower drums, any expansive movement being taken up by the curved form. The tubes are all curved, preferably, to the same radius. The hot gases passing above the tubes *c d* impinge upon the drum *g* and dry or superheat the steam therein. When it is not desired to superheat the steam, the drum *g* may be protected by a baffle or fire-brick arch and then used simply as an ordinary collecting-drum.

New Ax.

This invention was devised by Mr. John E. Leathers, of Fitzwilliam Depot, N. H. It relates to certain improvements in axes, one object being to provide an ax in which the cutting edge is arranged at such an angle with relation to the axial line of the eye and the helve that, in operation, the user is enabled to deliver a draw cut, that will be more effective and from which the chips can more readily clear themselves, than is the case with axes of ordinary construction. Another object is to provide an ax in which the cutting edge is arranged at such an angle that, in the splitting of

block is raised with the ax and brought down to the ground, the blow will be rendered more effective.

A further object of the invention is to provide an ax-blade in which the blade tapers in thickness from its outer to its inner or handle edge, so as to permit the more ready clearance of chips, and at the same time to facilitate the withdrawal of the tool from the wood should it become wedged therein.

The head of the blade is disposed approximately at a right angle to the outer edge of the blade, and is provided with an eye, located in a plane substantially parallel with that of the head. The cutting edge of the blade is at an acute angle to the outer edge and to the axial line of the eye. The helve has one end extending through the eye, and the general planes of the helve and the cutting edge of the blade, intersect in advance of the handle end of the helve.

An Office Indicator.

An office indicator having means for confining within a comparatively small space, a comparatively great number of indicator characters, has been patented by Charles F. Ruttman, of Valparaiso, Nebraska. A casing is provided comprising side walls having their inner faces recessed, and front and rear walls bearing upon the edges of the side walls, enclose the ends of the recesses. Substantially U-

terminal, to be engaged by a suitable key, by which the roller is turned to move the belt for bringing the indicator characters successively into view, which arrangement at the same time prevents unauthorized operation of the device.

New Door Hinge.

In self-closing doors, it has heretofore been the almost universal custom to provide spring hinges or other devices to secure the desired automatic movement of the door. Mr. John R. Hartman, of Davenport, Iowa, has, however, devised a simple hinge

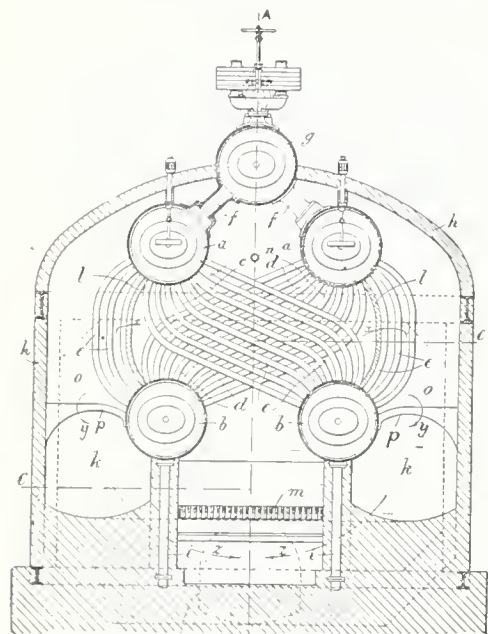


Fig. 1.

generation of steam, with economy of fuel consumption, the construction of the boiler, moreover, admitting of free expansion and contraction of the tubes, and the boiler, furthermore, when necessary, effecting a drying or

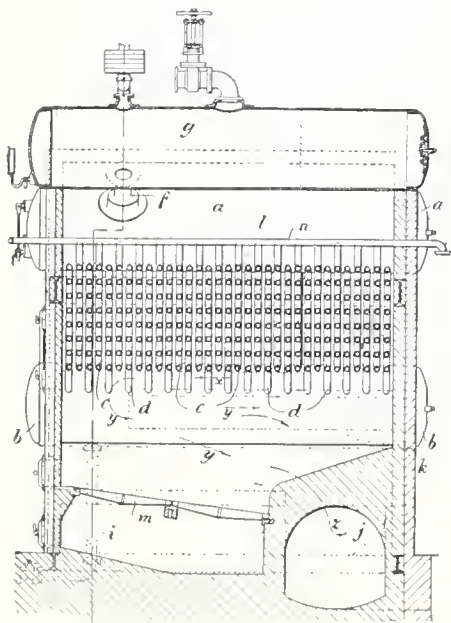
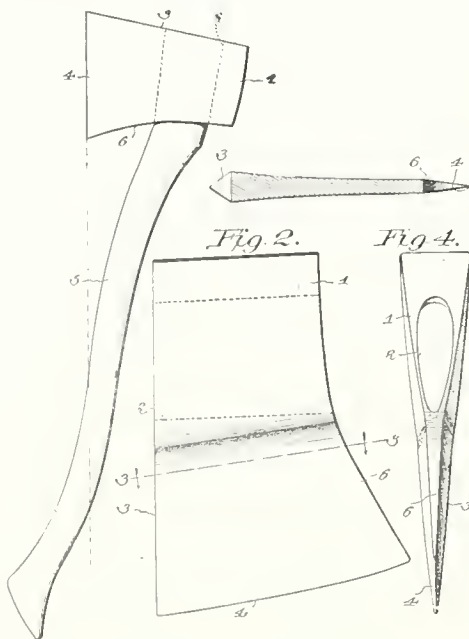
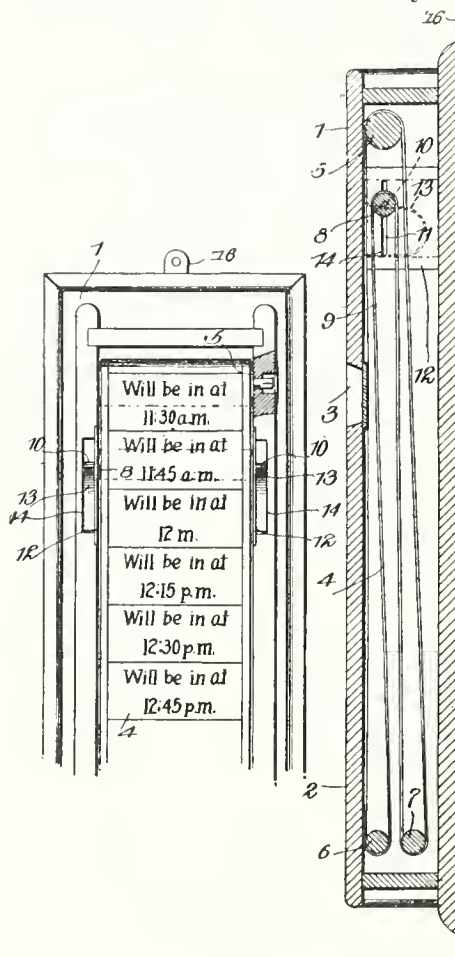


Fig. 2.

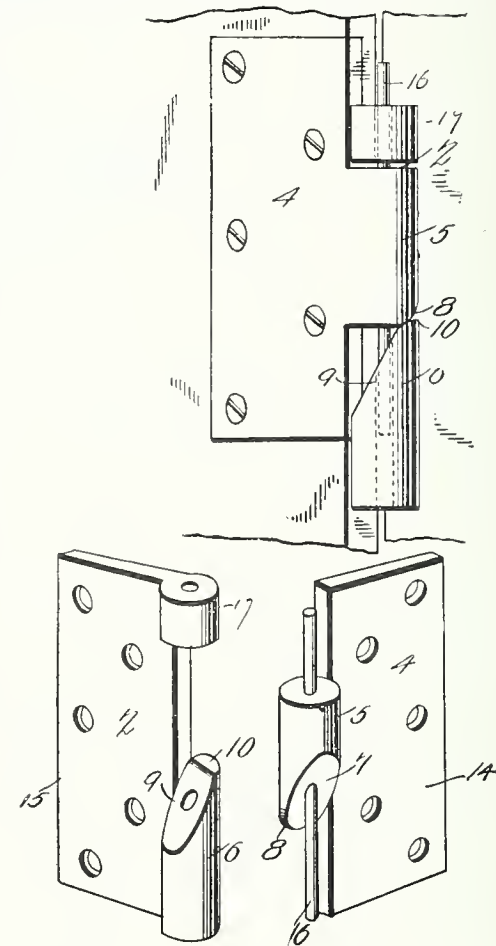
superheating of the steam. A cross sectional view of the improved boiler is shown in Figure 1, and a longitudinal section in Figure 2. It will be seen that two lower water drums *b* are employed, mounted on the side walls of the boiler furnace, the grate *m*, being located below these drums. Above the water drums *b* are disposed water and steam drums *a*. Each of the lower drums are connected to the diagonally opposite upper drum by sets of curved diagonal uptake water tubes *c, d*. Outwardly curved downtake tubes *e* extend from the upper drums to the corresponding lower drums, and these latter tubes are separated from the uptake tubes by partition walls *z*. A fifth drum *g*, constitut-



blocks of wood, the blade, entered at one blow, without fully splitting the block, will serve to hold the block in proper position, so that when the



shaped springs 13 are seated, one in each of the recesses, and plates, attached to the inner faces of the side walls, close the recesses and retain the springs in the latter. These plates are provided with longitudinal bearing-slots, and a tension roller has journals extending through the slots and bearing on the springs. A master roller and guide rollers are journaled within the casing, and an endless belt passes about the roller and also engages the tension roller. This belt has various indicatory legends thereon, which legends are displayed successively through a sight opening in the front wall. The end of the master-roller is provided with an angular



which obviates the necessity of springs, and permits the door to open smoothly and readily and at the same time elevates such door, so that it will override obstructions. A pair of hinge leaves 2, 4, are employed having co-operative beveled knuckles 5, 6. These leaves, furthermore, have their adjacent faces reversely beveled longitudinally, and their outer faces transversely beveled from their inner edges outward to the point of juncture with the knuckles. The coating faces of the knuckles are beveled, and thus one will ride freely over the other during the opening of the door and will move upwardly. Consequently, the door at the beginning of the opening movement will be quickly lifted to cause its lower end to override obstructions, and will swing automatically by gravity from its open to its closed position after the closing movement has been positively initiated. When closed, the door will, owing to the transverse beveling of the outer faces of the leaves, be subjected to a slight straining action which, as above described, will not only serve to maintain it in such position, but will, as the edge of the door and jamb become worn, compensate for such wear and prevent looseness and rattling of the parts. Further, owing to the longitudinal beveling of the inner faces of the leaves, the door will be subjected to a lifting action to prevent sagging.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

CHISHOLM et al. v. FLEMING et al.

(Circuit Court, D. Delaware. January 16, 1905.)

PATENTS—INFRINGEMENT.

The claims of letters patent No. 421,244, dated February 11, 1890, granted to Charles P. Chisholm and John A. Chisholm for "improvements in the method of hulling peas," sustained, and held to have been infringed.

UNITED SHOE MACHINERY COMPANY
v. DUPLESSIS INDEPENDENT SHOE
MACHINERY CO., Limited, et al.

(Circuit Court, D. Massachusetts. December 13, 1904.)

PATENTS—SUITS FOR INFRINGEMENT—JURISDICTION OF SUIT AGAINST ALIEN.

Act March 3, 1897, c. 395, 29 Stat. 695 [U. S. Comp. St. 1901, p. 589], providing that suits in Circuit Courts for the infringement of patents shall be brought only in "the district in which the defendant is an inhabitant, or in any district in which the defendant, whether a person, partnership, or corporation, shall have committed acts of infringement and have a regular and established place of business," applies only to defendants who are inhabitants of some district within the United States, and does not affect patent suits against aliens, which may be brought in any district where the defendant may be found.

VOIGHTMAN et al. v. PERKINSON et al.

(Circuit Court, N. D. Illinois. August 11, 1904.)

1. PATENTS—INVENTION—COMBINATION OF OLD ELEMENTS.

To render a combination of old elements patentable, all must co-operate to produce a new result.

2. FIREPROOF WINDOW.

The Voightman patent, No. 600,180 for a fireproof window, is void for lack of invention, being for an aggregation of old parts, each acting separately to produce the old result.

WESTINGHOUSE et al. v. NEW YORK
AIR BRAKE CO. et al.

(Circuit Court, S. D. New York. October 18, 1904.)

PATENTS—DAMAGES FOR INFRINGEMENT—INTEREST.

Interest on damages awarded for infringement by final decree allowed, under the circumstances of the case, from the date of the master's report, by which the damages as finally awarded were practically liquidated.

BRINTON et al. v. PAXTON et al.

(Circuit Court of Appeals, Third Circuit. December 22, 1904.)

1. PATENTS—VALIDITY AND INFRINGEMENT—KNITTING MACHINES.

The Paxton and O'Neill patent, No. 521,218, for a fashioning device for circular knitting machines, held valid, and infringed as to claims 1, 2, and 3 by one device made and sold by defendant, and as to claims 1 and 2 by a second device.

2. SAME—DAMAGES FOR INFRINGEMENT—PART OF MACHINE.

2. The damages recoverable for infringement of a patent covering a part of a machine must be determined on the best evidence obtainable, the burden resting upon complainant, however, to prove his case. Where the profit made on the patented part alone is shown, separate and apart from that made on the machine as a whole, and it also appears that no other substitute mechanism on the market was open to the use of defendant, complainant is entitled at least to recover such profits.

3. SAME.

Where a part of a machine made and sold by defendant is found to infringe complainant's patent, the court will not undertake to determine, in reduction of damages, the collateral question whether or not such part also infringes another patent, the validity and scope of which are not directly put in issue.

EMPIRE CITY AMUSEMENT COMPANY
v. WILTON.

(Circuit Court, D. Massachusetts. April 4, 1903.)

1. COPYRIGHTS—INFRINGEMENT—BILL—MULTIFARIOUSNESS.

Where it was convenient for the court that two causes of action for infringement of copyright, one with reference to certain cartoons and the other with reference to a play based thereon, should be joined in the same bill, it was within the discretion of the court to permit such joinder.

2. SAME—DEMURRER.

Where it was admitted that a bill to enjoin infringement of certain copyrights stated a cause of action arising from the alleged infringement of two dramatic compositions, and a demurrer failed to point out specifically what sentences or paragraphs of the bill were demurred to, it could not be sustained.

3. SAME—COPYRIGHT—CARTOONS.

Where certain cartoons were copyrighted, and later formed the basis of a farce comedy, it will not be held that there was no dramatic right in such cartoons which could be made the subject of copyright, on demurrer to a bill for alleged infringement thereof.

4. SAME—DEMURRER—DEFECT OF PARTIES.

Where a bill is filed to enjoin the infringement of copyright claimed by plaintiff in two dramatic compositions, the right to the use of which plaintiff acquired through assignments from the different owners of such plays, a demurrer to the bill for want of proper parties plaintiff, on the ground that the assignor of one of the plays should have been made a party, cannot be sustained, where defendant has not pointed out specifically the parts of the bill objected to; and the demurrer cannot be sustained for want of parties as to the whole bill.

UNITED SHOE MACHINERY COMPANY
v. CAUNT.

(Circuit Court, D. Massachusetts. December 26, 1904.)

PATENTS—COVENANT NOT TO CONTEST VALIDITY—CONSTRUCTION.

A covenant in a lease of patented machinery that the lessee will not contest the validity of the patent must be construed with reference to the grant expressed on the face of the patent, and, where it is for the full term of 17 years, the covenantor is debarred from setting up as a defense to a suit for infringement, that the patent expired before the expiration of such term by reason of the expiration of a prior foreign patent for the same invention.

WERCKMEISTER v. AMERICAN LITHO-
GRAPHIC CO. et al.

(Circuit Court of Appeals, Second Circuit. November 3, 1904.)

1. COPYRIGHTS—PLEADINGS—EVIDENCE.

Where, in a suit to restrain infringement of a copyright on a painting, defendant pleaded a subsequent exhibition of the painting at a Royal Academy in London as a publication thereof, and complainant took issue on the plea, evidence of restrictions on the exhibition of paintings at such exhibition, in that the public, other than members of the Academy and exhibitors and their families, were not entitled to admission, except on payment of an entrance fee, and that no permission to copy works during the exhibition could be granted, was competent as tending to negative the alleged publication.

2. SAME—EXHIBITION—PUBLICATION.

Under Rev. St. §§ 4952, 4955, 4962 [U. S. Comp. St. 1901, pp. 3406, 3407, 3411], authorizing copyrights of paintings, etc., and requiring notice of such copyright to be published thereon, the exhibition of an original copyrighted painting at an academy, at which no person was entitled to copy the same, and to which the public, other than the members of the academy, were not admitted, except on payment of a fee, without a notice of copyright thereon, did not constitute such a publication as avoided the copyright.

SCRIVEN et al. v. NORTH et al.

(Circuit Court of Appeals, Fourth Circuit. November 15, 1904.)

1. APPEAL—FINAL DECISION—DECREE IN PART FINAL AND IN PART INTERLOCUTORY.

Where a bill in a Circuit Court set up four distinct causes of action, one for infringe-

ment of a patent, one for infringement of a trade-mark and two for unfair competition, a decree dismissing the bill as to the first three causes of action is a "final decision" thereon, in such sense as to be appealable, although as to the fourth cause of action the bill is sustained and an accounting is directed thereunder.

2. UNFAIR COMPETITION—IMITATION OF DRESS—INTENT TO DECEIVE.

Complainants established the manufacture of a peculiar style of men's drawers, having a strip of elastic knitted material inserted at the seams. The body of the garment was white, and the seam strips made of Egyptian yarn, the natural color of which is yellow or buff, and which was selected deliberately and because of its distinctive color. Complainants also adopted the name "Scriven's Elastic Seam," and the arbitrary number "50," which were stamped upon each garment. Thirteen years or more later, and after complainants' garment had become known by reason of such distinctive features, and had acquired a high reputation and large sale on its merits, defendants began the manufacture and sale of an inferior and cheaper garment, but having the same general appearance. They were stamped with the words "Standard Stretchy Seam" and the same numeral, "50," in a style imitating that of complainants. When complainants changed the form of their stamp, defendants changed theirs to correspond. They also advertised their goods as "Elastic Seam Drawers." In some cases defendants also used a cheaper domestic yarn in making the seam strips, dyed to imitate the Egyptian yarn used by complainants. Held that, aside from any question of trade-mark or of a defendants' right to make and sell their goods without resorting to deception, such facts showed a deliberate intention to deceive purchasers by palming off their goods as those of complainants, which constituted unfair competition, and entitled complainants to an injunction; it being further shown that purchasers were in fact deceived, and that defendants' goods were largely advertised and sold by dealers as "Scriven's."

3. GROUNDS FOR RELIEF.

The general principle that no man has a right to pass off his goods as and for the goods of another is broader than the rules applicable to strict trade-mark, and extends to all cases of unfair competition; the difference between cases for infringement of trade-mark and those for relief against unfair competition being mainly in the matter of proof, the imitation of a trade-mark raising a conclusion presumptive of fraud, while in cases of unfair competition actual fraud or misleading of the public, or conduct calculated and intended to mislead it, must be shown by the proofs.

4. PATENTS—INFRINGEMENT—UNDERGARMENTS.

The Scriven patents, No. 378,465 and No. 472,555, each for improvements in undergarments, construed, and held not infringed.

WINDLE v. PARKS & WOOLSON MACH.
CO.

(Circuit Court of Appeals, Second Circuit. December 6, 1904.)

1. PATENTS—ANTICIPATION—CLOTH MEASURING MACHINES.

The Windle patent, No. 507,300, for a cloth-measuring machine—the feature of novelty claimed being the use of a split and expansible ring for the ends of the measuring cylinder, and means for forcing the ends apart so as to enlarge the circumference of the cylinder to adapt it to the varying elasticity of the cloth to be measured—is void for anticipation; such rings having been previously used on other machines made and sold by the patentee.

2. SAME—DESCRIPTION OF INVENTION—RESORT TO DRAWINGS.

While a doubtful or ambiguous description in the specification of a patent may be aided and made plain by the drawings, they cannot supply the entire absence of any written description of a feature of the invention.

RUMFORD CHEMICAL WORKS v. NEW
YORK BAKING POWDER CO. et al.

(Circuit Court of Appeals, Second Circuit. July 7, 1904.)

PATENTS—INVENTION—BAKING POWDER.

The Catlin patent, No. 474,811, for a baking powder in which the phosphoric acid element is in granular form essentially free from pulverulent material, instead of in a finely pulverized condition, as in prior com-

pounds, discloses invention, it being shown that the change in form of such element enhances the keeping quality of the preparation, and prevents its loss of efficiency for use by exposure to the atmosphere. The patent also held valid as against the defenses of prior use and abandonment, and infringed.

WILCE et al. v. BUSH TEMPLE OF MUSIC
CO.*

(Circuit Court of Appeals, Seventh Circuit. October 4, 1904.)

PATENTS—INVENTION—FLOORING.

The Wilce & Barnham patent, No. 531,711, for an improved floor, in which the ends as well as the edges of the boards are united by a tongue and groove joint, the joinder being made "hit-or-miss," without reference to the joists, is void for lack of invention in view of the prior art, which disclosed both features of the alleged invention, which were merely brought together by the patentee.

JEFFERSON ELECTRIC LIGHT, HEAT &
POWER CO. v. WESTINGHOUSE
ELECTRIC & MFG. CO.

(Circuit Court of Appeals, Third Circuit. January 16, 1905.)

PATENTS—SUIT FOR INFRINGEMENT—PRELIMINARY INJUNCTION.

A preliminary injunction should not be granted where the defendant in a suit for infringement is merely a user of the alleged infringing device, and it is not shown that irreparable injury or any special injury will result to complainant from its continued use, and where the preliminary proofs on a defense of res judicata pleaded, leave the question in serious doubt.

CONFECTIONERS' MACHINERY & MFG.
CO. v. PANOUALIAS.

(Circuit Court of Appeals, Second Circuit. December 12, 1904.)

PATENTS—CONSTRUCTION OF LICENSE CONTRACT—ROYALTY.

A contract which requires the licensee under a patent to pay a royalty on each machine "sold or delivered" covers machines delivered by the licensee to customers, but which were returned, and not paid for.

PARSONS v. NEW HOME SEWING MA-
CHINE CO. et al.

(Circuit Court of Appeals, Seventh Circuit. October 4, 1904.)

PATENTS—INFRINGEMENT—SEWING MACHINE—RUFFLERS.

The Parsons patent, No. 354,577, for a sewing machine ruffler, held valid as to claims 2, 7, and 8, but, as limited by the prior art, not infringed.

MESICK et al. v. HASSLER.

(Circuit Court, D. Massachusetts. January 4, 1905.)

PATENTS—INFRINGEMENT—MACHINES FOR BRAIDING WHIPLASHES.

The Turner patent, No. 432,582, for improvements in racers used in machines for braiding whiplashes, claim 3, must be limited to the combination of the specific elements described, and, as so limited, is not infringed by the machine of the Hassler patent, No. 683,276, which lacks one of the essential and characteristic elements of such combination.

UNITED STATES WHIP CO. v. HASSLER.

(Circuit Court, D. Massachusetts. January 4, 1905.)

1. PATENTS—REISSUE—LIMITATION TO ORIGINAL INVENTION.

A reissued patent must be confined to the invention which was intended to be secured by the original patent. Devices or parts which, although described or shown in the specification or drawings of the original patent, were not a part of the invention, as therein disclosed, cannot be covered by a reissue.

2. SAME—TENSION FOR BRAIDING MACHINES.

The Turner reissued patent No. 12,058 (original No. 679,650), for a tension device for the racers of braiding machines, is void, as not being for the same invention as that of the original patent.

MECHANICAL INVENTIONS AND DESIGNS

Patents for which have been procured
through the Patent Soliciting Office
of E. G. Siggers, Patent Lawyer,
Washington, D. C.

John T. Burton, Jonesburg, Mo. Vehicle Brake.—The vehicle brake of the present invention is entirely automatic in its operation, and is especially designed for use on hay wagons and other vehicles, where the nature of the load interferes with the use of the ordinary vehicle brakes. The brake will be automatically applied when a vehicle is descending a hill or other grade, and will be gradually released when there is a forward pull or strain on the draft devices. Means are also provided for enabling a vehicle to be readily backed when desired. The tongue of the vehicle is slotted to receive a pivot of the slide, which is mounted on the tongue, and which is connected with the doubletree. A cuff or sleeve is mounted on the front portion of the tongue for connection with the draft animals and with the slide. An upright lever is fulcrumed between its ends on the rear portion of the tongue: one arm of the lever is connected with the brake shoes, and the other arm is connected with the slide, so that when the latter or the cuff moves rearwardly on the tongue, the brake will be applied. By locking the slide against movement, the vehicle may be freely backed.

Robert J. Riley, Zion City, Ill. Eraser Cleaner. Can Holder. Letter and Carbon Sheet Holder. Three patents.—The first patent covers a device whereby blackboard erasers may be freed from the accumulations of crayon dust. A pair of swinging arms are employed, each having sets of eraser holders designed to secure the erasers with their rubbing faces in position. When these arms are swung towards each other, the erasers are brought together, and the dust thus jarred to the surfaces of the same and released. A buffer interposed between the arms serves to separate the same after they have been brought together, in order to permit the free escape of the dust. This device is an important invention, as it provides simple and cheap means for effecting a thorough cleansing of the erasers.

The second patent relates to means for holding ordinary tin cans, and converting the same into useful household utensils. A handle is provided formed of a single looped wire having down-turned ends, and to these ends are connected adjustable can-embracing straps. The straps are adapted to be placed about a can or other receptacle, and the arms of the handle are then drawn towards each other by a sliding link and are fastened by a hook. The handle is thereby securely clamped to the can or receptacle, and a useful cup is consequently provided.

The third patent embodies a letter and carbon sheet holder, designed for use in business establishments and other places for making either a loose or book copy. It is capable of firmly clamping a carbon sheet, and an original or letter sheet, and it will enable the latter to be removed without releasing the carbon sheet. The device is provided with front and back plates to receive the original and carbon sheets, and clamps are located at the top and sides of the plates. The top clamps serve to hold the carbon sheet in place, and the side clamps are adapted to hold a letter sheet and a loose copy sheet, and they will permit the same to be removed without releasing the carbon sheet. One of the plates is also provided with a pair of extensions or wings adapted to be introduced between the leaves of a book

at the binding thereof, whereby the device is firmly held in position for making copies within the book.

William T. Yard, Trenton, N. J. Two patents. Sprayer and Sawing Machine.—The mechanism covered by the first patent is particularly intended for distributing insecticide over a comparatively large area, and in substantially any direction desired. A wheeled support or vehicle is employed, on which is mounted a reservoir containing the material to be distributed. Connected with this reservoir is a pump from which extends a supply pipe. Projecting from the rear end of the vehicle is a nozzle support, in which is clamped a holding block carrying an upstanding nozzle to which the supply pipe is attached. A standard located alongside the nozzle has pivoted thereon a spring valve, normally held closed by a spring, the tension of which can be adjusted as desired. The nozzle can also be adjusted, and thus the insecticide can be spread in any direction and with any force necessary. The machine is particularly useful for spraying low plants, bushes and the like, as it may be drawn directly over the same.

It is the aim of the second invention to enable a cross cut saw to be manipulated by an operator with either hand or foot power, and without the aid of an attendant. The machine is capable of effectually guiding a cross cut saw, and it is adapted to hold a log so as to prevent the same from being pushed away from the machine during the forward movement of the saw. The frame of the sawing machine is in the form of a stand, which is provided at the top with an opening for an upright operating lever. The operating lever, which is connected at its lower end with a cross cut saw, is provided at the top with a handle or grip, and at the bottom with stirrups for the feet, so that either the handle or the feet may be used to operate the machine. To prevent displacement of the log, the machine is provided with a workholder consisting of an inclined arm hinged at the top to the frame, and provided at the bottom with means for engaging the log.

Addison B. Carll, Boothwyn, Pa. Hanger for Pipes or Analogous Articles, and Attachment for Drills. Three patents.—The first of these structures is adapted to clamp upon a beam or other angular support, and comprises a body in which are slidably engaged the overlapped shanks of a pair of beam-engaging books, ordinarily held against movement by a set screw. From this body is suspended a screw-threaded shank, having a nut screwed upon its lower end, which nut is provided with an annular recess. A pipe or conduit-engaging strap has its terminals out-turned and engages in the annular recess of the nut.

The second structure is more particularly adapted for suspension from a ceiling formed of hollow tiles and the like. In certain of the cells of the tiles are formed openings, and in such openings are engaged out-turned hooks, pivotally connected and respectively carried by the sections of a shank. The shank is adapted to be held against movement, in order to lock the hooks in operative position. The result is accomplished either by forming semicircular conduit-embracing jaws on the sections and securing the same around the pipe, or other article to be supported, or by threading a nut upon the sections and suspending from this nut a shank having a pipe-embracing stirrup.

The third device is designed particularly for use when boring holes in the sides of a boiler, tank, or similar object, and it is adapted to be readily varied in length for firmly engaging the wall or side of a boiler or tank at a point diametrically opposite that at which the drill is boring. It is also

capable of adjustment to accommodate ratchet drills of different lengths, and drill points or bits of various sizes. The device comprises a backing-up brace provided with a centering notch or seat, and an arm extending from the backing-up brace lengthwise of the drill, so as to span the same from the rear end thereof to the tool. The front end of the arm is provided with means for guiding the tool, and the backing-up brace is adjustable for varying the length of the attachment.

Albert W. Miller, Riverside, Cal. Two patents. Limb Prop Bracket and Mortising Machine.—The limb prop bracket, which is both useful and ornamental, is designed to prevent limbs loaded with fruit from breaking, and it consists of a skeleton or frame-like body of substantially quadri-lateral form. The sides of the body diverge outwardly, and have intumed ends, which terminate in hooks. The hooks, which have their engaging portions or bills opposite each other, are arranged wholly within the body of the bracket. The other end of the bracket is provided with an upstanding tongue, which is curved longitudinally to conform to the configuration of a limb.

The device of the second patent is particularly intended for mortising recesses in the edges of doors and the like for receiving locks, though not necessarily limited to this use. It consists of a frame having spaced tracks or guides, being, furthermore, provided at one end with clamping jaws, whereby the frame can be secured in line with the edge of the door at the place in which the mortise is to be cut. Slidably mounted between the tracks or guides is a carrier block, and pivoted upon this block is a lever constituting means for moving the carrier, and being also an actuator for an oscillating cutter mounted upon one end of the lever. Yieldingly connected to the lever on opposite sides of the pivot axis are cleaning devices. In use, the device is secured to the edge of the door, the lever is oscillated, and the cutter therefore will form the mortise in the edge, being substantially automatic in its feeding action. The chips are cleaned out of the mortise by the cleaner stems, which are reciprocated by the lever.

Edgar J. Bryan, inventor: Albert W. Miller, assignee, Riverside, Cal. Hand Truck. Four patents.—The truck of the first patent is constructed for engaging a box or other package without tilting the same, as is commonly required, to introduce the nose portion of the truck beneath the box. Also the means for holding the box or other package upon the truck is under the control of the foot of the operator, so that it may be conveniently engaged with a box, and also automatically disengaged by tilting the truck into an upright position, when the box has been placed upon the ground or floor. The package engaging means comprise a pair of clamping members, which are fulcrumed between their ends on the truck, and spring-actuated means for holding the clamping members open. The clamping members are brought into engagement with a box by a foot lever, and are retained in such engagement by the weight of the package. As soon as the clamping members are relieved of such weight, they will automatically open, and thereby release the box.

In the second patent, means are provided for adjusting the clamping members to control their opening and closing movements, and thereby adapt them for operating on either large or small boxes or packages. The construction is also further improved by eliminating the spring of the previous patent, and by providing means for positively withdrawing the clamping members from engagement with a

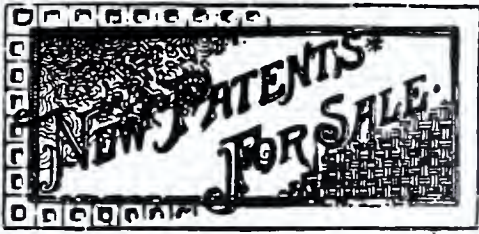
load. The clamping members are fulcrumed at their inner ends on a pair of laterally-adjustable oscillatory links, which are adjusted toward and from each other by means of a slidable bar. By moving the bar along the truck, the pivotal or fulcrum points of the clamping members are moved toward or from each other, and the opening and closing movements of the latter are consequently controlled. The clamping members, which are arranged to close by gravity, are connected by chains with a rock-shaft by means of which the members are positively disengaged from a load.

In the third patent, the inventor improved and simplified the construction of the load clamping mechanism by providing means for enabling the clamping members to be positively moved in either direction by the foot of the operator. The clamping members are connected by a pair of transversely-disposed bars adapted to be swung into and out of alignment to open and close the clamping members, and capable of being locked in alignment for retaining the clamping members in their open position. A foot lever is connected with the transverse bars, and is mounted on an oscillatory fulcrum, consisting of a link pivoted to the frame of the truck.

In the third form of invention, it is necessary to move the foot lever upwardly by the foot to open the clamping members. This slight inconvenience has been remedied in the fourth patent by providing a slide, which is directly connected with the transverse bars, and which is provided with a foot piece for enabling it to be positively moved downward by the foot to open the clamping members. The slide is moved in the opposite direction by a foot lever, which closes the clamping members upon the box or other package. The construction has been further improved in the last patent by fulcruming the foot lever upon the axle of the truck, thereby securing great strength, and at the same time lessening the cost of construction.

Richard F. Schroeder, Sacramento, California. Two patents. Burner and Hydrocarbon Feeder System.—The first invention has for its object to effect a thorough and efficient mixing of oil and steam in a simple and inexpensive manner, prior to the ignition, and also to provide for conveniently controlling the supply of oil, and for adjusting the mixing device so as to insure a proper intermingling of the steam and oil. The oil burner comprises an outer steam tube, and an inner oil tube having its discharge end terminating short of the corresponding end of the outer tube. The outer or discharge end of the steam tube constitutes a mixing chamber, and a conical oil deflector is mounted within the same, and is adjustable towards and from the oil tube.

The system covered by the second patent is intended for feeding hydrocarbon and similar oils to oil burning boiler furnaces, and the prime object thereof is to provide a system which is automatic in action, requiring a minimum amount of attention, and at the same time being comparatively inexpensive to install. The oil at the furnace is mixed with steam, and this steam is taken direct from the boiler and is employed for driving the oil to the furnace, being impregnated with the gases and vapors of the oil. A reservoir is provided for the oil, and in this reservoir sediment and impurities are automatically removed from the oil. Moreover, the supply to the furnace is automatically controlled by the boiler pressure in a novel manner, and when the supply of oil in the reservoir becomes depleted, it is automatically replenished. The whole system is thus practically automatic in its action, and has proven to be highly efficient in service.



Advertisements inserted in this column for 15 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—Patent No. 780,122, dated Jan. 17, 1905. Air Apparatus for vessels. Address, Hans Nelson, Chippewa Falls, Wisconsin. jun

FOR SALE—Patent No. 758,225, dated April 26, 1904. Electric Engine for the operation of light machinery, such as printing presses, pumps, fans, etc. Will sell outright or lease on royalty plan. Address, Alexis Vanderbeck, Box 4 Rosebud, Kansas. jun

FOR SALE—Patent No. 777,996, dated Dec. 20, 1904. Basin Holder for bathroom. Cash or royalty. Address, Oscar K. Applegate, No. 1 Hudson Street, Trenton, N. J. jun

FOR SALE—Patent on Safety Box. Intended for the safe keeping of valuable papers, jewelry, etc. When tampered with or molested will give alarm by blank shot or continuous ringing of bell, which cannot be stopped except by owner. For terms and general information address, T. C. McPherson, P. O. Box 504, Beaver Falls, Pa. jun

FOR SALE—Patent No. 767,007, dated August 9, 1904. Cultivator for raising sweet potatoes and other crops. Best in the world. Write for circular. Address, W. H. Page, Swedesboro, N. J. jun

FOR SALE—Patent No. 774,256, dated Nov. 8, 1904. Dumping Grass Collector. Address, Joseph H. Hunt, R. F. D. No. 2 Bucyrus, Kan. my

FOR SALE—Patent No. 772,293, dated Oct. 11, 1904. Adjustable Buggy-Top Brace. Will sell at a bargain for cash to divide the interests of owners. Address, W. M. Reese, Caladonia, Miss. my

FOR SALE—Patent No. 764,052. Match Lighting Attachment, patented July 5, 1904. This attachment is to be attached to lamps. Will sell cheap. For further information write to George C. Harrison, Elyria, Ohio. my

FOR SALE—Patent No. 772,528, dated Oct. 18, 1904. Horse-shoeing vise. Will sell exclusive right for cash. Nothing can equal it on the market. Address, J. Whitet, Washington, Kansas. my

FOR SALE—U. S. Patent No. 776,722, dated Dec. 6, 1904. Combination window shade fixture, dies, fixtures and customers. Address, Brumbaugh & Walters, No. 555 Mich. Street, Elkhart, Indiana. my

FOR SALE—Latest adjustable book clasp and lock combined. Model to demonstrate. Will sell at a sacrifice. Address, D. R. Reefer, No. 311 E. 3d. Street, Plainfield, N. J. my

FOR SALE or on royalty—Patent No. 775,590, dated Nov. 22, 1904. Ash sifter to connect with stove. Easy to manufacture. Big profit. Every household needs one. Will sell cheap for cash. Address, W. T. Whiteway, No. 225 Broadway, Cambridge, Mass. my

FOR SALE—Patent No. 780,824, dated Jan. 24, 1904. Automatic Telephone, together with Nos. 632,759 and 760,711, thoroughly tested and well improved; secret, simple, durable and reliable. Will sell outright or state rights. Address, James C. Slater, No. 3125 N. Newstead Avenue, St. Louis, Mo. my

FOR SALE or on royalty—Patent No. 777,943, dated Dec. 20, 1904. Accordion Printing Machine. Can be built for \$10. Other similar machines sell for \$250 to \$500. Address, Norman De Witte, 11 a Jefferson St. Watertown, N. Y. my

FOR SALE—Patent No. 754,450, March 15, 1904; and No. 775,401, Nov. 22, 1904. For a new class of city maps, showing all traction lines individually without colors. For publishers and map engravers. Send for sample. Address, E. Heubach, Edison Park, Ill. my

FOR SALE—Patent No. 773,638, dated Nov. 1, 1904. Combination steel, wood, and concrete railroad tie. For copy of patent and information. Address, A. J. Harlow, inventor, or J. W. Welsh, roadmaster B. & O. S. W. R. R., Mitchell, Indiana. my

FOR SALE—Patent No. 764,021, dated July 5, 1904. Lubricator for oiling car journals while in motion. Will sell outright for cash or trade for land. Address, W. S. Kenaga, White Church, Mo. apr

FOR SALE—Patent No. 728,414, dated May 19, 1903. Belt Supporter. Will sell at sacrifice owing to inability to give attention to it. Address, G. F. Rhoads, 420 Central Avenue, Plainfield, N. J. apr

FOR SALE—Canadian Patent No. 79,055. Adjustable Window Screen. On account of failing health, I am selling. Is being manufactured in the United States with considerable success. Address, David E. Fleming, 1113 D Street, Santa Ana, California. apr

FOR SALE—Patent No. 775,064, dated Nov. 15, 1904. Automatic Railway Switch Adjuster. No more open switches where it is used. Will sell for cash or on royalty. Canadian patent also for sale. Address, W. T. Harris, Ellettsville, Indiana. apr

FOR SALE—Patents No. 605,385 & No. 637,704. Street Sweeper. Will throw all dust and refuse into a receptacle. Practically dustless in operation. Will sell outright or lease on royalty. Alvin Brown, Plainfield, Ill. apr

FOR SALE—Design Patent No. 37,215, dated Nov. 8, 1904. Window Radiator. Will sell it outright for cash cheap, or will license under royalty. Address, Anthony J. Pieszak, 234 Lord Street, Dunkirk, N. Y. apr

FOR SALE—U. S. Patent No. 760,318, dated August 2, 1904. Hat Form Retainer. Make me an offer for my half interest. Address, E. B. Salisbury, Box 301, White Bear Lake, Minn. apr

FOR SALE—Rein Support. Prevents the horse from getting its tail over the reins; supports same when not in use; prevents their getting tangled, and serves many other purposes. Address, W. T. Jarboe, Winfield, Md. apr

FOR SALE—U. S. Patents No. 737,941, dated Sept. 1, 1903. Valve Cut Off for Tanks; and No. 769,550, dated Sept. 6, 1904. Supply and Service Tanks. Will sell cheap for cash. Send me an offer. Will lease on royalty. Address, P. J. Leithauser, Defiance, Ohio. jun

FOR SALE—Patent No. 776,922, dated December 6, 1904. A new pump, windmill or hand power. Satisfaction guaranteed. Address, P. J. Leithauser, Clarendon, Tex. jun

FOR SALE—Patents No. 774,693, Steering Apparatus for Ships, issued Nov. 8, 1904; and No. 755,928, Heat Regulator, March 29, 1904. Address, John Peterson, Lake George, N. Y. dec 05

WANTED.

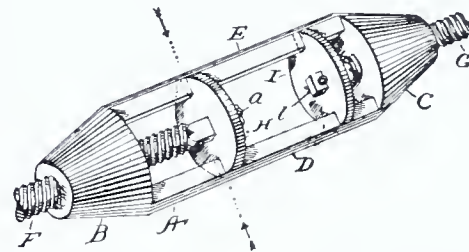
WANTED—Bids for manufacturing by machine, new dishwasher from mesh-wire or perforated metal. Address, Box 305, Washington, Pa. jun

WANTED to place on royalty—Patent No. 776,690, dated Dec. 6, 1904. Banana Display Case. Wanted to place with reliable show case or store fixture manufacturing company. Not an experiment, but a SUCCESS. Address, D. D. Rush, Duluth, Minn. my

WANTED—A partner with business ability and some capital. I have several good inventions; also a house and lot. Partner wanted to put in machine shop to manufacture inventions. Am willing to give forty-five per cent of stock, and also pay back every dollar put in the business. Address, Oskar Melbye, Anacortes, Washington. apr

NOTICE TO MANUFACTURERS: I have a meat and vegetable chopper made of wood and metal. Have sold 200 from model in this city. On what terms can I get it manufactured? Address, Taylor M. Minor, Wabash, Ind. my

THE COWART SAFETY TURNBUCKLE.
Patented Feb. 16, 1904. Canada Protected.
FOR SALE.



Useful for car builders, steam shovels, ship builders and bridge builders. They will not work loose.

E. H. COWART,

PLEASANTON, CAL. jun.05

Drawings for Inventors.

If you want copies of the drawings of your patent, we can procure them at these prices:

12 copies, each sheet full size (8x13)	\$ 2.50
25 " " " " " "	3.50
50 " " " " " "	4.50
100 " " " " " "	7.00
500 " " " " " "	13.00
1000 " " " " " "	17.00

12 copies, each sheet reduced $\frac{2}{3}$ ($8\frac{1}{2} \times 5\frac{1}{2}$)	\$1.25
25 " " " " " "	2.00
50 " " " " " "	3.00
100 " " " " " "	4.00
500 " " " " " "	7.50
1000 " " " " " "	9.00

These copies will be made by the photo-lithographic process, by the firm which formerly attended to the Patent Office work, and will be equally as good as the drawings accompanying your letters patent. Five hundred copies of your patent would cost you at least \$25. We can furnish 500 copies of the drawings, if contained on one sheet, for \$13 full size, or \$7.50, if reduced one-third, the same reduction as your letters patent drawings. Your valued orders solicited.

The Inventive Age Publishing Company,
WASHINGTON, D. C.

A NEW BOOK FOR INVENTORS.

Patents and How to Make

Money out of Them.

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trademarks and copyrights. It also tells accurately How and What to Invent, How to sell Inventions, Place them on the Market, Interest Capital in them, and to successfully Promote a Stock Company. It also contains an index of forms worth double the price of the book, to any one interested.

ELEGANTLY CLOTH BOUND.

GOLD STAMPED. \$1.00 Postpaid.

Sent with one subscription to AGE for \$1.75.

Or will sell separately.

Address— **The Inventive Age Pub. Co.,**

918 F St., N. W. WASHINGTON, D. C.

Thousands

of inventions in the field of Railway and Engineering are being patented every year.

The Railway and Engineering Review

carries more advertisements of patent attorneys than any other railway paper in North America.

For rates, address—

The Railway and Engineering Review,
1305 Manhattan Building, Chicago.

Bee-Keepers

Should all subscribe to

THE AMERICAN BEE-KEEPER,

(Established 14 years.)

50 cents per year.)

The best magazine for beginners. We will send it **Six Months on Trial for 20 cents.** Sample copy free.

Address:

The American Bee-Keeper, Falconer, N.Y.

It is published by the

W. T. FALCONER, MFG. CO.

One of the oldest and largest makers of bee-keepers' supplies. Catalogue free.



Attention Inventors!

LISTS OF MANUFACTURERS FURNISHED.

We are prepared to furnish lists of manufacturers in any line of industry.

Charge one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: **INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.**

Every subscriber is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad will be inserted three times.

THE INVENTIVE AGE PUBLISHING CO., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.....

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

The Inventive Age

AND PATENT INDEX.

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 918 F Street, N. W.,

WASHINGTON, D. C.

The INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND A HALF.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

The INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 15 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,

WASHINGTON, D. C.

Entered at the Post-office as second class matter.

WASHINGTON, APRIL, 1905.

Lists of Manufacturers.

We desire to announce to our readers that we have lately increased our facilities for furnishing lists of manufacturers in any line of industry, and invite their attention to the advertisement printed on page 7 of the AGE, concerning the cost of furnishing such lists to inventors. We believe that inventors can obtain better and cheaper lists of manufacturers through our office than elsewhere, and solicit a trial.

Subscribers Attention!

Owing to the fact that the postal officials do not always give the same care and attention, in the handling of newspaper mail, as they do to first-class matter, we occasionally receive complaints that the AGE has not been delivered. We therefore desire to notify our subscribers, that upon receipt of a notice as to the particular number of the AGE which is missing, we shall always be glad to supply the same free of charge, but request that before they write us, they make diligent inquiry at their postoffice to see if the paper has been received there.

Chances for Inventors.

In spite of the many wise heads at work on the unsolved problems of the day, so many of them are still unsolved, and so many new ones continually come up, that the chances for the man of inventive turn were never better. Many vast treasure fields remain intact. For instance, investigations have proved that huge areas of the floor of the Pacific are strewn with nodules of pure manganese. Invent a practical and economical method for recovering these nodules, and you will become rich beyond the dreams of avarice. Another crying need of the day is a complete substitute for Para rubber. Celluloid, oxidized linseed oil, and other preparations have been used for some of its purposes; but for cycle and automobile tires, only the real Para has suffi-

cient elasticity. A perfect substitute at a less cost would make its inventor many times a millionaire. Malleable glass was manufactured and used by the Romans 2,000 years ago. The process has long been lost, and it seems odd that in this mechanical age, no one should be able to rediscover it. Real photography in colors is still an open field, and offers boundless prizes for the inventor. In smaller matters, too, the need is endless. Jewelers, for instance, are still quite without any safe method for fixing pearls on jewelry, such as rings, where the gems are mounted without a surrounding setting.—*Technical World.*

A Prize Offer.

The *Engineering News* Publishing Company, of New York City, has offered prizes amounting to \$350 to stimulate the production of literature on the subject of concrete block manufacture and construction. The conditions are as follows:

The author whose paper is judged to be the best will receive a prize of \$250. The author who is second in rank will receive a prize of \$100. The merit of the papers will be judged chiefly from the standpoint of their practical usefulness to an engineer who proposes to establish a local business in the manufacture of concrete blocks.

The length of the paper should not be less than 5,000 words, or more than 10,000. It may be accompanied by any drawings or photographs which the author deems necessary for its illustration. All manuscripts must be typewritten, and be received at the New York office, No. 220 Broadway, New York, N. Y., not later than July 21, 1905. They must be signed with some *non de plume*, and accompanied by a sealed envelop bearing on the outside the *non de plume*, and on the inside the full name and address. Manuscripts and accompanying matter should be sent prepaid by express, or registered mail, since their receipt cannot be acknowledged in the ordinary way. They should be marked on the outside of the wrapper, "For the Concrete Block Prize Competition."

As soon as possible after the close of the competition, the manuscripts will be examined by the editors of the *Engineering News*, and from the whole number offered, the five best manuscripts will be selected for submission to a jury consisting of Messrs. Robert W. Lesley, Past President of the American Cement Manufacturers' Association; Richard L. Humphrey, President of the Cement Users' Association; and Prof. Edgar Marburg, Secretary of the American Society of Testing Materials.

As soon as the selection is made by the jury, the sealed envelopes will be opened, and public announcement made of the competition. The prize articles will be published in the *Engineering News* and in the *Cement Age*.

The *Engineering News* Publishing Company reserves the right to publish any other articles submitted in the competition and not awarded a prize, or any portions of such articles, paying the author for the matter so used at the regular rates for contributed articles.

CONDITION OF WORK IN THE PATENT OFFICE

In each week's issue of the Official Gazette, there is given a report of the condition of work in the thirty-eight divisions of the Patent Office at the close of the business for the week previous. In one column is given the date of the oldest new application; in the second column the date of the oldest action by applicant awaiting official action; in the third column appears the total number of applications awaiting action by the examiner.

A few of the divisions are within one month in the consideration of new applications, but the majority of the divisions of the Patent Office are several months in arrears. There is one division which has on hand over eight hundred applications awaiting official action. The total number of applications awaiting action on April 11, 1905, was 16,012. This is the first time within our knowledge, when so many applications have been awaiting action by the patent examiners, though anyone following the reports each week, can readily see a gradual increase in the number of applications awaiting action, showing that, with few exceptions, the divisions are continually falling behind.

One would not mind waiting two or three months for an official action, if he knew at the end of that time, after taking his turn, that he would likely receive his patent without any further delay. The rule is though, that instead of waiting two or three months for his patent, he is likely to wait two or three times that period, depending wholly on the division to which the application has been assigned. For instance, there is one division of the Patent Office, which is now considering cases that were amended early in December. This means that for each amendment filed, an applicant has to wait four months for an action. That is to say, he will wait four months for the first action; four months for the second; four months for the third, and so on. By the simple process of addition, one can readily calculate and see how a year might pass by without any material advance having been made toward the allowance of the application.

If the attorney or the applicant is particular about his claims, and is insistent on their allowance in broad terms, it is pretty apt to be a year before the case is settled. Under the practice, the examiner simply cites patents against the particular claims made in the application. If the attorney amending the application changes the claims, and puts them in an amended form, the examiner, on the second action may cite different patents, necessitating further amendment on the part of the applicant or his attorney; and this thing may be kept up for several successive actions, with the result that a year will slip by before one realizes it, and the case is still pending. In the meantime, the applicant is gradually being worn out by delay, while his partner, if he has one, has about made up his mind that a patent will never be granted.

There ought to be some remedy for the present condition of affairs other than prolonging the hours of labor of those who are compelled to do the work. It has been found that extending the hours does not accomplish any results, and if anything, it has a tend-

ency to drive from the Patent Office into private employment, men who are invaluable in their particular fields of labor.

We are somewhat surprised that inventors do not make a concerted effort to remedy the present situation. We believe that an investigation would disclose some weakness in the present system of examination, which, if the proper remedies were applied, might cause the work to be brought up to date. Possibly the examiners have gotten into a rut in their examinations, and that if another system were introduced, the work could be expedited. There seems to be a crying need for a reform movement in this direction, for present conditions have almost reached the unbearable point.

PATENT INFRINGEMENT SUITS.

A Contrast Between the U. S. and Canada.

The AGE, has repeatedly commented on the necessity for a change in the judicial system of this country affecting patents, and commended the bill introduced in Congress for the establishment of a new judicial tribunal, to be known as the Court of Patent Appeals and located in Washington. The bill has thus far failed in Congress, and it will necessitate the use of more pressure on the national legislature than has been heretofore applied, in order to secure the passage of the bill. It will require something more than the prestige and influence of the American Bar Association to pass the bill in the present temper of Congress, which has before it for consideration the seemingly weightier matters of railway rate legislation, tariff revision, etc. As heretofore explained, there are nine circuits in the United States and each circuit has a Circuit Court of Appeals. Each circuit comprises a number of states of the United States. A patent may be sustained in one circuit and defeated in another. For instance, it may be infringed with impunity in Vermont because of the decision of the Circuit Court of Appeals of that circuit declaring the patent to be void; or the patentee may compel tribute to be paid in Pennsylvania owing to a decision of the Circuit Court of Appeals of that circuit holding the patent to be valid. Not until the Supreme Court of the United States consents by a writ of certiorari to take jurisdiction, can a patent be carried into the Supreme Court for final adjudication.

Contrast, however, the condition of affairs in Canada. There, a Court of Exchequer located in Ottawa, Canada, hears all patent cases in the first instance, for all provinces of Canada. From this decision, an appeal can be taken to the Supreme Court of Canada, and there the controversy ends. One suit and one appeal settles the validity of the patent for the entire Dominion, and it has always been so.

Another wise provision of the Canadian laws is one requiring the defeated party to pay one-half of the costs of the litigation, and in assessing such costs, the attorneys' charges, fixed by the Court, are counted as part of the costs. It would seem that there is something in the Canadian practice which we can borrow and introduce with profit into this country. The principal costs in patent litigation are the attorneys' and experts' charges, but in the United States, each party has to bear his own costs, no matter how the case is settled.

SCIENTIFIC



PROGRESS.

Trains Weighed in Motion.

Railway men in England have a device for weighing a freight train while in motion, which saves much time in shunting. The train is drawn over the weighbridge at the rate of about three miles an hour, and as each car passes, the weight is instantly recorded accurately on a dial or clock face. This result is attained by cutting away a portion of the permanent way at each end of the weighing platform, and substituting short lengths of rail, which rest at one end on pedestals upon the permanent way, and at the other upon the girders of the weighbridge. This gradually transmits the load to the levers of the weighbridge. The device allows a great many more trains to be dealt with in a day, than the method formerly employed.

Electric Stove.

An electric stove in which heat is generated by passing an electric current through a resistance-wire, has been patented by Earl H. Richardson, of Ontario, Cal., and he has assigned, by direct and mesne assignments, his entire interest in this invention to Pacific Electric Heating Company, of the same place.

One object of the invention is to provide for flexibility of that part of the stove which supports the dish or other object to be heated, and to employ for this purpose a plurality of contact or heating blocks, which are resiliently supported so that they will accommodate themselves to any unevenness in the bottom of the dish or object. Means are also provided for preventing heat from escaping in any direction, except toward the top of the stove. The resiliency of the supporting heat-blocks is such that when the dish or other object to be heated is placed upon the supporting-blocks, they are depressed by the weight of the dish so that it rests upon the rim of the stove, which further confines the heat and prevents escape of heat radially from under the bottom of the dish. When the weight of the dish or other object being heated is removed from the blocks, they will assume a position which will cause them to separate slightly from the edges of the stove and form cracks or spaces, which allow air to circulate around and under the heat-blocks to prevent excessive heating of the blocks when the dish is off. This is of special value in cases where the dish has been removed and through negligence the current has not been turned off from the heater.

A Novel Propeller.

An interesting model of a curious propeller was exhibited at the Motor Boat Show held recently in New York City. It was only about 9 inches long—made of bronze—but it was able to propel itself across the lake with the small spring that worked the propeller. The novelty lay in the driving power, and the inventor has been working for ten years to perfect his ideas. At the stern of the boat are two arms, one on each side. These extend under the water, and by an ingenious piece of mechanism, are made to work just as a duck works its legs when swimming. At the end of each arm is a metal piece, shaped like a duck's foot, which

expands when driven against the water and folds when being brought forward preparatory to another kick. The movement was perfect, and the boat under this power moved fast and easily. The inventor, Mr. P. A. Peterson, calls it an oscillating propeller. He has patented his invention, and is now going to get out a model boat, with the propellers worked by a gas engine. This propeller will drive the boat ahead or astern just as the helmsmen wants, but it does not go astern as fast as it will go ahead. Mr. Peterson, with the characteristic enthusiasm of the inventor, drew pictures at the show for the benefit of those interested, of a boat which should be able to cross the Atlantic in three days, and declared that with his propeller, the speed of a vessel can be increased fifty per cent with the same power of engine.

New Process of Making Mineral Wool.

A process of manufacturing mineral wool has been recently patented by Thomas B. Parkinson, of Muncie, Indiana, the object of which is to produce a fibrous material from the slag or scoria of iron, glass, and certain species of rock or other suitable substance by means of instrumentalities which will produce filaments or fibers of considerable length, great toughness, and of soft uniform texture. It is also the object of this invention to reduce to a minimum or entirely eliminate the small bead-like particles usually found in large quantities in mineral wool and due to the imperfect vibration of the scoria. Ordinarily mineral wool is produced by directing a strong blast of air or steam through the molten slag as it issues from the cupola, to blow the molten mass through a blow-tube and into a blow-chamber or receiver. The material settles in the blow-chamber in the form of a mass of fine fiber interspersed with considerable quantities of minute globules or beads, the presence of which is due to the imperfect conversion of the slag into a fibrous form. Aside from the presence of this solid though minute residue, the usual process is open to serious objection, for the reason that the fiber is highly frangible and the individual filaments are very short and of irregular thickness. The body of mineral wool is therefore but slightly coherent, and is of a hard though loose texture, which makes it extremely difficult to form the wool in different permanent shapes.

By extensive experiment, Mr. Parkinson has discovered that the beadlike particles, the presence of which in the wool has been marked, are produced by the cooling of the slag before the latter is completely converted into fibrous form, the minute beads solidifying at the ends of the filaments. By subjecting the material during its flight to the action of hot vapor, preferably smoke, or a combination of smoke and steam, the fibers are softened or annealed, materially lengthened, and given additional tensile strength, with the result that the wool is of a soft coherent texture and is almost wholly devoid of heady particles.

Nursery for Lobsters.

Science thinks it has met a long felt want in providing means for incubating lobsters. The Fish Commission has been experimenting in this line for some years, and the result is the opening of a hatchery on the coast of Maine which is to go regularly into the business. It starts this season with a capacity for receiving and hatching 20,000,000 eggs, and it employs two steamers which cruise among the islands along the coast, collecting the product.

In their natural surroundings, female lobsters produce eggs only once in two years; but they make up in number what they lack in frequency—a healthy, good-sized lobster yielding about 15,000 eggs. Instead of casting the new laid eggs adrift, the mother attaches them to the under side of her armored tail, where they remain from July until the following May. As soon as the water becomes warm the eggs hatch, and long, white, gelatinous lines, which will eventually turn into lobsters, float away and mingle with the creatures of the sea.

For the first few weeks, the fry seem to have no power to protect themselves from their enemies; and when they are not eaten by sea urchins, star fishes and other predaceous creatures, they turn cannibals and live upon their own brothers and sisters. So great is the infant mortality among lobsters that it is estimated that out of every 1,000,000 hatched from the eggs, not more than 700 survive the second moult, at which time the young crustaceans develop hard shells and begin to take an interest in life.

A score of the most expert zoologists in the country have spent three summers experimenting with the lobster fry, trying to discover if they can be induced to survive under artificial conditions. Most of the trials have resulted in killing 98 per cent of the fry before the second moult. The device finally invented was to place the fry in cloth-covered cylinders about 10 feet long and 4 feet in diameter, and keep the salt water contained therein agitated by fans, which are operated from a shaft run through the cylinders. Unless the water is in motion all the time, the fry fall to the bottom of their cloth prisons, where they proceed to devour each other, until out of 10,000 fry, only a score will be left at the end of a couple of weeks. Until last year, the best result that had been obtained from these lobster nurseries was to save about 700 lobsters after the second moulting from a million fry. The trouble in rearing the fry to an age when they are large enough to guard themselves against harm, lies in the fact that they are so careless about their own welfare that they surrender to any living creature that comes in their vicinity. Cannibalism is the most serious obstacle to overcome. When two young lobsters set out to swim the ten feet between the ends of a cylinder and are moving in parallel lines, the chances are more than 10 to 1 that when they arrive at their destination, one of them will be in the situation of the lady from Niger who went out to ride on a tiger. The greatest danger to the fry, however, comes from foes that are of small size.

When two days from the egg, a specimen will turn out to avoid a fish that is eight inches long, but will not vary a hair's breadth from its course to get away from one of its own brethren. This discovery has led the scientists to put sculpins and small cunners into the cloth tanks, for the purpose of noting results.

It was found that while the fry would make an effort to escape from certain death from the greed of the fishes, they were unable to swim fast enough and destruction awaited every one as soon as it was seen by its enemies. Hoping for some solution to the problem that had baffled them so long, the fish specialists next captured small sculpins and encased their mouths in fine gauze, that would admit the water, but exclude the lobsters; and found that they had hit upon a method that is full of promise.

By keeping the captive sculpins hungry, so they would make constant efforts to procure food, the young lobsters were chased about their prisons so furiously that they had no time to pause and eat each other; and having enough shredded porgie to feed upon, they passed through two moults and assumed shells without sacrificing more than one half of their number to the accidents peculiar to extreme youth.

It is believed that this ingenious, if heartless, use of the sculpins will result in such a reduction of the death rate among baby lobsters, that the price of the full grown lobsters in the markets of the big cities will be reduced 50 per cent within five years.

High-Speed Telegraph Instrument.

A remarkable high-speed telegraph instrument has been invented by an Englishman named Donald Murray, who claims that it is as great an advance upon the Morse instrument as the Morse was upon its predecessor, the single needle. For twelve months the post-office has had the instrument working for experimental purposes between London and Edinburgh, apparently with promising results, for it has now been decided to test further a perfected instrument that has been devised by Mr. Murray during that period. If the Murray transmitter ever becomes universally adopted, it will mean that telegraph clerks will never have to put pen or pencil to a telegram, beyond perhaps marking upon it the time of handing in.

The system is in some respects similar to the Whetstone. It uses a paper tape, which, instead of being hand punched, is perforated by an instrument. The tape at the other end of the wire is similarly perforated, instead of being marked by dots and dashes. This tape can be placed upon another machine, which converts the perforations into printed words on telegraph forms, at the rate of about 120 to 150 words a minute. The system is four or five times as fast as the Morse, and consists of three stages:

1. The telegram is copied on a machine resembling a typewriter. Paper tape runs through this and is perforated as each letter is struck.

2. The message, as it appears on the tape, is run at a very rapid rate through a transmitter, and an exact facsimile of the tape is produced at the other end of the wire.

3. The tape is put through a typewriter with automatic mechanism, driven by a small electric motor, and the message reappears neatly printed, lined and spaced.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy; twenty copies \$1.50.—Please give correct data in ordering.—Address,
THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

Issued February 28, 1905.

MECHANICAL PATENTS.

Abrading implement.....G. S. Edwards et al
Accounts. Means for entering R. C. Williams
Acids from solutions. Apparatus for the recovery of volatile.....E. R. Hewitt
Advertising device.....L. V. Redpath et al
Air brake.....J. D. Walsh
Amusement apparatus.....U. Ancillotti
Angle joint.....J. D. Walsh
Armatures for dynamos with wave-winding. Equipotential connections for E. Arnold et al
Bag turning machine... 2 pats. W. H. Lester
Bale band fastening.....D. M. Campbell
Bale or crate.....A. M. Sheakley
Baling press.....M. C. Nixon
Ball mill.....O. Some
Barrel heater.....J. M. Chambers
Barrel jack.....J. E. Laffin
Basin top Catch.....R. M. Van Buskirk
Basins. Inlet structure for catch.....F. Barker
Bath suit bag.....W. A. Allen
Bearing. Adjustable.....H. D. Lenz
Bearing. Roller.....M. F. Hull
Bearing. Self oiling.....E. C. Knapp
Bed. Folding.....C. C. Jennings
Bed. Invalid.....L. J. Zuercher et al
Bed pan.....P. Barlow
Bed riser.....F. & J. M. Holland
Bed spring.....R. W. Shaw
Bed spring frame corner block.....G. Brand
Beehive.....R. F. Holtermann
Beer cooling apparatus.....J. W. Harris
Belt. Skirt supporting.....F. M. Richmond
Bicycle seat post lock.....E. E. Brown
Bit brace.....J. M. Ribert
Blacking dauber.....H. E. Gartrell
Boats. Metallic calking for H. E. Dantzebecher
Bobbin holder.....T. J. Murdoch
Boiler furnace.....M. F. Cossio
Boiler tube cleaner.....H. L. Greene et al
Book or periodical.....I. Kitsee
Boot or shoe and shank stiffener therefor.....W. H. Nickerson
Bottle corking machine.....P. Rosenthal et al
Bottle. Non refillable.....A. V. Westerlund
Bottle. Non refillable.....M. G. Delaney
Bottle. Non reusable.....J. B. Smith
Bottle stopper.....W. A. Coke
Bottle stopper and extractor. Combined.....A. P. Watt
Bottle support and protector. Nursing.....W. F. & P. T. Craig
Bottles or the like. Capsule stopper for.....E. Goldstein
Box.....J. Bergoff
Box fastener.....G. M. Williams
Box for tobacco, &c.....L. Raiser
Bracelet.....A. Eklund
Brake.....F. C. Milburn
Brake system. Automatic fluid pressure.....J. S. Bubb
Breastpins, &c. Safety attachment for.....A. L. Benedict
Brick. Making fire.....S. Norton
Brick making machine.....T. S. Lawrence
Bridle bit. Reversible.....P. B. Kochheiser
Briquet forming machine.....C. D. Jenkins
Buckle.....F. E. Shailor
Buffing tools. Apparatus for treating.....G. L. Zucker
Building block.....A. H. Merrill
Building block.....E. Morenus
Building blocks. Mold for the manufacture of.....E. Morenus
Building construction.....E. G. Perrot
Burglar or fire alarm system.....H. W. Culp
Burner.....J. N. Leach
Button.....F. E. Faruham
Button Campaign or advertising.....P. Krastin
Cable clip.....W. Greger
Can body machine.....C. J. Weinman
Can body making machine.....O. J. Johnson
Can opener.....E. K. Myers
Can testing machine.....E. P. Holden
Candelabrum. Electric.....C. E. Weeks
Cane mill feed box.....J. P. Golden
Car construction. Street.....J. P. Paton
Car coupling.....C. McCarter
Car coupling.....W. S. Schroeder et al
Car grain door.....F. Hachmann et al
Car platform gate.....H. Witte
Car. Railway.....O. M. Jones
Car ratchet brake. Street.....J. Roediger
Car. Street.....W. P. Michel
Car from single deck to double deck, and vice versa. Device for changing railway stock.....H. C. Carson
Carbureter.....W. L. Severance et al
Carbureter. Explosive engine.....R. Shipman
Card grinder.....R. J. Aushonart
Cart. Dumping.....A. Brenzinger
Castings. Combination metal mold for brass.....F. Haggenjos
Castings. Mold for making brass.....F. Haggenjos
Cattle guard.....A. G. Hendryx
Check holding rack... 2 pats. J. B. Strauss
Cigarette receptacle.....A. Q. Walsh
Cinder shaker.....C. D. Cutts
Circuit controller.....R. A. Baldwin
Clamp or vise.....J. & W. Black
Clasp.....P. W. Gruener et al
Cleaning and separating machine.....C. Frick
Clock. Electric secondary.....F. I. Getty
Clock. Striking.....W. P. Walter
Closet seat.....H. H. Sievert
Closure fastening device.....F. Canfield
Cloth carrier.....W. H. Howard
Clothes rack.....E. W. Baribeau et al
Coal compressing and charging device.....J. B. Ladd
Coffee pot.....W. S. James
Coil former.....A. F. Batchelder
Comb.....J. McGraw
Commutator.....H. A. Knoener

Concrete wall mold.....O. E. Wennberg
Concrete wall mold.....P. H. Clingan
Condensing system.....J. S. Forbes
Conveyer.....C. H. Anderson
Conveyer and distributor.....J. W. Stevens
Conveying and pressing apparatus.....C. S. Wheelwright
Coop door. Chicken.....W. Munstermann
Copper from ores. Extracting G. H. Waterbury
Cord drop attachment Balanced H. D'Olier, Jr
Cores. Material for making.....G. W. Briggs
Corner clamp.....J. M. Conroy
Corrugating machine.....T. F. Rowland
Corset.....A. Harbridge
Cotton picker.....B. F. Davis
Cows. Antikicking device for W. H. Lamont
Cream of tartar. Making G. W. Hooven et al
Cream separator. Centrifugal.....E. G. Erikson et al
Cuff pin.....F. E. Farnham
Culinary stock. Making.....W. B. Kerr
Cultivator.....E. M. Swanson
Cultivator.....W. Newby
Cultivator and thinner. Cotton A. O. Yeatman
Cupping die.....C. G. Perkins et al
Currents. Generating low frequency.....W. Stanley
Curtains, rolls, &c. Fastening for G. J. Reoid
Cutlery. Table.....I. Hirsch
Damper mechanism. Time controlling.....H. P. H. Galloway
Damper. Range oven.....J. F. Hayes
Dental measuring instrument.....L. A. Smith
Dental separating disk.....R. H. Hull
Designs upon flexible fabrics. Machine for producing.....G. A. Herzog
Detinning.....F. von Kugegen et al
Display cabinet.....J. Pinten
Display rack.....A. H. Burt
Door catch.....L. D. Smith
Door lock.....N. P. Otis et al
Dough stripping mechanism.....A. W. Copland
Drawing board.....E. E. McAnelly
Drier.....C. A. Matcham
Drying and burning furnace. Continuous.....F. P. Smith
Drinking fountain.....E. R. Soleau
Drum. Rattle.....O. R. Noble
Duplicating apparatus. Stencil.....A. B. Dick
Dust pan.....J. W. Walter
Elastic fabric. Woven.....H. J. Galsman
Electric apparatus. Starting means for gas or vapor... 2 pats. P. H. Thomas
Electric conductors. Indicating leaks in.....I. Kitsee
Electric elevator.....E. H. Vogel
Electric furnace.....G. O. Seward
Electric lighting system.....A. G. Davis
Electric lighting system.....J. Lindall
Electric lights or the like. Adjustable support for.....C. D. Kemmerer
Electric machine frame. Dynamo.....B. A. Behrend
Electric machine oscillator.....E. C. Wright
Electric machines. Apparatus for the commutation of direct current dynamo F. W. Young
Electric machines. Apparatus for the commutation of direct current dynamo G. S. Dunn
Electric machines. Commutation of direct current dynamo.....F. W. Young
Electric machines. Commutation of direct current dynamo.....G. S. Dunn
Electric push switch.....G. B. Thomas
Electric switch.....P. L. Clark
Electric switch.....4 pats. W. H. Powell
Electric switch.....E. R. Douglas
Electric time switch.....C. J. Sullivan
Electrical distribution system.....P. H. Thomas
Electrical plug cut out cover W. C. Tregoning
Electromagnetic waves or other feeble alternating signal impulses. Apparatus for receiving.....F. K. Vreeland
Emergency brake.....F. B. Corey
Emergency device.....F. B. Corey
Engine vaporizing device. Explosive.....C. E. Dawson
Evaporating excretal closet.....F. P. Smith
Excavating shovel tooth.....F. J. Thomas
Exercising apparatus. Baby.....W. P. Abell
Explosive.....J. C. Mitchell
Extension table.....T. Stutzman et al
Face drying apparatus.....L. P. Bowen et al
Feed and water bag.....T. N. Winslow
Feed water heater.....J. M. Keller
Feeding or watering trough.....J. H. Lyon
Fence gate.....R. W. Dean
Fence guard. Wire.....T. Huberdeau
Fence machine.....J. R. Hutton
Fence mold.....Q. G. Sheldon
Fence post.....A. O. Tabor
Fence post.....G. Garrett
File and cabinet.....W. C. Sessoms
Finger ring.....J. A. Lieb, Jr
Fire doors. Device for automatically operating.....D. A. Reagan
Fire engine heater.....W. B. Water
Fire extinguisher attachment.....F. H. Bailey
Fire extinguisher. Automatic H. W. Martin
Fire extinguishing apparatus. Automatic.....C. E. Buell
Fire. Open sprinkler for protection against.....G. Dinkel
Fire protection. Store.....A. A. Hanson
Firearm.....F. K. Young et al
Firearm. Gas operated.....S. N. McClean
Firearm magazine.....F. J. Baker
Firearm shell ejecting machine.....F. P. White
Firearm sight.....E. S. Pratt
Fireproof pier for buildings.....G. Liebau
Fishing reel.....W. Kramer
Flue cleaner.....E. E. Johnson
Flue cutter.....C. G. W. Wernicke
Fluid fuel burner.....F. L. McGahan
Folding box.....3 pats. W. H. Thompson
Food cabinet and table. Hot.....H. H. Cooke
Fruit jar.....C. A. Spiess et al
Fruit picker.....C. Schakl
Fuel. Artificial.....H. R. Woltmann
Fuel by distillation. Apparatus for making artificial.....J. T. Davis
Furnace.....W. H. Riley

Furnace.....L. P. Cohén
Furnace.....W. J. Bolton
Furnace arch.....G. L. Davison et al
Game apparatus.....L. B. Pennell
Game apparatus. Lawn.....R. T. Carr
Game device.....W. E. Bowen
Garment supporter.....C. H. Pike
Gas burner.....J. F. Yoho
Gas engine.....C. E. Sargent
Gas enriching machine.....C. S. Kline
Gas fixture.....F. Billingham
Gas flames at a distance. Distributing apparatus for lighting.....E. Worringen
Gas generator. Acetylene.....V. E. Peterson
Gas generator. Acetylene.....A. S. Phelps, Jr
Gas generator. Acetylene.....W. A. Gribble
Gas. Retort for the manufacture of G. Horn
Gases from hydrocarbon. Apparatus for generating and burning.....J. N. Leach
Gate.....J. Hodgson
Gates, &c. Combined closer and latch for.....P. M. McKinney
Girdle.....A. Wennerstrom
Glass furnace. reissue. S. O. Richardson, Jr
Glue. Treating bones for the production of.....E. R. Hewitt
Grain cleaning device.....J. R. Harrison et al
Grain separator.....J. K. White
Grate for open fireplaces. Basket.....F. A. Hickson
Grinding disk facing apparatus. Attrition mill.....E. P. Alsted
Gymnasium apparatus.....M. B. Reach
Hair pin.....J. S. Newlin
Hame attachment.....T. E. Stockford
Hame fastening means.....T. G. Foster
Harness pad for horses.....E. L. McClain
Harvester. Corn.....S. J. Hageman
Harvester. Cotton.....G. Lisenard
Hat brim trimming machine.....A. Kindermann
Hay divider and track cleaner.....S. F. Hudson
Hay rake.....D. S. Harrold
Heat. Apparatus for utilizing solar.....E. C. Ketchum
Heating device for use with liquid fuel.....A. R. Scherding
Heating system.....F. F. Coggin
Heating system. Hot water.....J. P. Sinclair
Hoidback attachment. Single harness.....G. Kresge
Hook and eye.....M. G. Miller
Horse blanket attachment.....E. E. Miller
Horseshoe calk machine.....D. G. Wyman
Horseshoe. Safety tread.....B. Braun
Hose supporter.....S. Mayer
Hunter's blind. Duck.....J. T. Throne et al
Hydrant.....W. L. Selleck
Hydrant or water plug.....A. K. Brake
Hydrostatic pressure in service stand pipes. Apparatus for reducing.....H. L. Goodwin
Ice hoist.....W. A. Bock
Index card holding device.....C. C. Poole et al
Induction coil.....H. Shoemaker
Insect collecting apparatus.....D. J. Marston
Insulated railway rail joint.....E. D. Lewis
Insulating base block for electric equipment.....M. Guett
Insulation for edgewise wound coil.....G. H. Rupley
Ironing machine. Fold collar.....L. R. Heim
Jar holder.....O. Cooper
Joist hanger.....J. Tuteur
Kilns. Means for supporting chinaware in glazing.....F. G. Haney
Knife cleaning apparatus.....F. W. Margets
Knitting machine. Circular.....A. C. Baum
Lacing stud. Shoe.....C. H. Harden
Lamp adjuster. Electric... 2 pats. H. D'Olier, Jr
Lamp and socket. Electric.....C. G. Perkins
Lamp. Electric arc.....C. A. Nagel
Lampextinguisher.....F. S. Dilworth
Lamp. Gas.....A. C. Noad
Lamp. Incandescent gas light.....L. Wolff
Lamp shade attachment.....H. D'Olier, Jr
Lamp wick raiser. Central draft.....W. A. Penfield
Lamp wick tube. Central draft.....W. A. Penfield
Lantern.....F. D. Spear
Lath making machine.....R. K. Gregory
Lathe.....N. D. Chard
Leaf holder.....M. E. Spielman
Leather and producing same. Patent.....B. B. Goldsmith
Leather cutting machine.....J. W. Kennen
Leather. Producing castor.....O. F. Feix
Leg. Folding.....E. F. McKenna
Legging.....T. W. Hamilton
Lemon squeezer... 2 pats. J. M. Ribert
Lifting machine. Coin controlled.....A. A. Caillit
Limb. Artificial.....S. Rosenfelder
Lime. Treating.....C. Ellis et al
Line holds. Spring.....R. F. McPettridge
Liquid cooling and aerating apparatus.....T. K. Wilson
Liquids from solids. Apparatus for removing.....C. S. Wheelwright
Loading machine.....F. Norman
Log skidding device.....H. B. Frey
Loom.....F. S. Hamel
Loom. Automatic filling replenishing.....O. Buckler
Loom for weaving pile fabrics.....A. Buckler
Loom shuttle thread tension means.....J. Northrop
Looms. Reversible shifting shuttle box for.....T. F. Doyle
Lubricator.....E. J. Mougette
Lumber. Drying.....J. S. Jarratt
Mail bag catcher and deliverer.....E. E. Handman et al
Mail or package transmitter.....C. F. H. C. & C. Zimmerman
Manhole cover.....D. E. Olds
Massage machine.....M. Chaffin
Matrix assembler. Hand.....M. F. Britt
Measuring instrument. Electrical.....W. A. Price
Measuring instruments. Temperature compensating device for thermo-electric.....W. H. Bristol

Measure.....A. L. Hapgood
Meat cutter.....A. W. Johnson
Mechanical movement.....A. D. Bloch
Medicine dropper.....J. C. Dujat
Mercerizing apparatus.....P. Edlich
Metal. Expanding.....C. J. W. Hayes
Metal working apparatus. Transformer for electric.....E. Thomson
Meter.....J. A. Tilden
Micanite, &c. Machine for cutting.....E. G. Kastenhuber
Micrometer gage.....E. C. Clapp
Milk can.....C. H. Cornell
Molding machine.....W. S. Godwin
Monkey wrench.....J. B. Smith
Motor controller.....W. A. McTaggart
Motors. Governing continuous current.....G. Sautter
Mowing machine cutter bar lifting attachment.....F. Swartwout
Muffler.....J. G. Heatset
Muffler.....G. Hyman
Mule shoe.....W. H. Lake
Necktie.....H. A. Markel
Needle threader.....S. H. Garner
Nut lock.....C. W. Gibbs
Nut lock.....J. T. Davis
Nut lock.....A. P. Steel
Nut. Lock.....C. W. Gibbs
Nut locking device.....F. W. Brittan et al
Nut. Screw bolt lock.....R. Harrington
Oil and water retort and burner.....W. L. Decker
Oil heating and purifying apparatus.....J. F. Malcom
Oil for lubricators. Visible auxiliary.....W. E. Stryant et al
Oiling device.....W. A. Huff
Ore furnace.....A. Skoog
Ore separator.....J. M. Couper
Oven. Bake.....A. Edwards
Package. Implement for facilitating the application of wrapping cord to.....G. Larson et al
Packing. Steam joint... 2 pats. C. C. Frost
Pail. Metallic.....A. Shaynin
Paper clip.....G. B. Koblinger
Paper pail.....T. L. Neumann
Paper top. Lace.....J. Hess
Peeler. Tomato.....G. G. Glenn
Pencil and pen holder. Pocket.....J. V. Pilcher
Pendulum.....F. I. Getty
Phonic apparatus.....D. Higham
Phonograph records. Machine for extracting duplicate.....D. A. Dodd
Photographic film package for color photography.....J. T. Clarke
Photographic instrument finder.....P. V. Avril
Photographic printing machine.....W. T. Mead
Piano construction.....R. W. Gertz
Pin fastener.....F. E. Farnham
Pipe bending apparatus.....L. H. Brinkman
Pipe cutting, screwing, and bending appliance. Portable.....D. Maxwell
Pitch. Manufacturing.....G. von Winkner
Planimeter.....E. F. Chase
Plaster. Making building.....G. Williams
Plow.....E. J. Rubottom
Plow or cultivator clamp.....U. C. Grabe
Plow. Self-propeller.....F. R. Lanier
Plumb and spirit level.....P. H. Sanger
Pneumatic cushion. Antivibration.....L. Harris
Post.....D. R. Porter
Potato digger.....C. J. Cummings
Potato digger.....H. A. Fuller
Power transmitter.....C. P. H. Vary et al
Printer's galley.....W. H. Schuyler
Printing apparatus.....J. I. McDonald
Printing films. Weighted holdfast for.....B. Day
Printing machine automatic register gear.....T. Cossar
Printing or embossing machine.....A. A. Caille
Prop. Pivoted.....F. Bauer
Pulley. Loose or idle.....R. Voltz et al
Pump.....J. Bewsher
Punch. Center.....J. J. Hartley et al
Puttying tool.....E. B. Kennedy
Rack.....C. Bernhard
Railway. Electric.....A. Diatto
Railway rail stay.....H. H. Sponenburg
Railway signal.....J. Doyle
Razor. Safety.....A. Williams
Reamer.....H. C. Bramer
Reamer. Adjustable.....W. J. Smith
Receptacle and game counter. Combined.....A. Hirsch
Receptacle closure.....W. C. Bubles
Reflector. Side.....F. Billingham
Refuse matter. Apparatus for evaporating and burning.....F. P. Smith
Refuse matter drying and cremating apparatus.....F. P. Smith
Regenerative furnace.....S. Groh
Regulator.....2 pats. R. Fleming
Rendering apparatus.....C. S. Wheelwright
Rheostat.....W. H. Powell
Rheostat. Time limit starting and controlling.....R. H. Read et al
Rock drilling engine.....J. G. Leyner
Rolling mill. Hot system.....W. Kent
Rope clamp.....A. M. Acklin
Rotary combustion engine.....H. Holzwarth
Rotary engine.....C. F. Ulrich
Rotary motor.....A. Hula
Rotary motor.....A. Sauer
Rubber boot.....E. Kendall
Rubber compound.....E. W. Strain
Rubber fabric. Cord for the manufacture of.....C. H. Gray et al
Sad iron.....B. Mumby
Sad iron handle.....W. Cole
Salt treating apparatus.....H. C. Coward
Sawmill. Portable.....H. B. Frey
Scaffold.....R. G. Johnston
Scale. Hydrostatic weighing.....J. A. Barclay
Screw driver.....J. Swan
Seal. Bottle.....H. C. McDougall
Seaming machine. Double.....C. W. Sleeper
Search light.....R. G. Du Bois

Seine pursing apparatus..... J. Savoy
Sewage. Device for manipulating and disposing of..... F. P. Smith
Sewer work inside form..... C. Gustafson
Sewing machine feed mechanism..... J. Bigelow
Sewing machine feeding mechanism. Single thread..... J. Bigelow
Sewing machine looper. Reversible feed..... J. Bigelow
Sewing machine. Ruffling..... F. J. Hudson
Sewing machine stop mechanism..... D. Mills
Shaft clamp..... H. C. Swan
Shaft coupling..... F. A. Merston
Shaft key..... G. A. Stahl
Sharpener for cutters of bread slicing machines..... G. Root
Sheet metal slitting machine..... C. J. W. Hayes
Shelf. Plant window..... G. W. Curtis
Shirt waist..... M. L. Carr
Shoe fastener..... A. J. Harlan
Shoes, &c. Device for applying sock linings to..... G. F. Dunn
Shutter worker..... D. M. Coiner
Sight feed lubricator..... W. E. Bryant et al
Skate blade toe protector..... T. W. Bryant
Sled brake attachment..... G. P. Sampson
Sleigh..... N. Johnson et al
Slicer. Bread..... G. Root
Smelting furnace..... M. Murphy
Smoke consumer..... M. Doyle
Soldering machine horn support..... O. J. Johnson
Sound records. Production of quasi original..... F. L. Capps et al
Sound reproducing machines. Speed and the regulating device for use upon..... E. B. Finch
Speaking tube or telephone mouthpiece..... W. R. Kimball
Speed indicator for automobiles, &c..... C. Caille
Spindle bobbin clutching means. Rotatable..... W. E. Allen
Spindle bobbin clutching means. Rotatable..... G. W. Knight et al
Spinning ring..... J. R. Coe
Spring seat..... J. Werner
Springwork..... J. A. Staples
Sputum cup and holder or container therefor..... C. W. Meinecke et al
Stairway. Movable..... W. I. Wright
Stalk cutter..... T. J. Bradley
Static machine revolving plate..... B. E. Baker
Steam generator..... G. D. Cooper
Steam trap..... J. H. Taylor
Stilt..... W. J. Thurnbull
Stone mold. Artificial..... J. B. Clayton et al
Stone or brick. Manufacturing..... A. L. Munson
Stove. Gas..... H. Niemeczek
Stove protector..... W. Leininger
Striking mechanism..... A. A. Caille
Stuffing box..... W. C. Norris
Submarine viewing apparatus..... F. McMahon
Superheater..... E. Pielock
Suture supporting plate..... O. O. Withersbee
Switch contact. Electric..... W. C. Tregoning
Switch operating mechanism. Electric..... F. H. Gray
Switch turn button. Electric..... E. A. La Har
Table leaf. Extension..... H. Johnson
Target trap..... A. H. Hoffman
Teaching device. Penmanship..... F. C. Young
Telegraphy..... M. O. Anthony
Telegraphy by electric waves. Wireless..... A. Blondel
Telephone exchange system..... W. M. Davis
Telephone switch..... A. W. Hammer
Telephony..... E. A. Buell
Tension device..... E. Lawson
Test plug for protective apparatus..... F. B. Cook
Theater curtain operating means..... E. G. Nicewaner
Thill coupling..... E. L. Walter
Thill detach and brake. Combination..... H. H. Harshaw
Thread guide..... C. H. Cowan
Thread point. Safety..... W. C. Perry
Threshing machine feed regulator..... A. G. Critchfield
Tide power apparatus..... W. Guindon
Timepiece hair spring collet..... F. R. Cunningham
Time recording apparatus for employees..... T. H. Roberts
Tire..... C. Miller
Tire attaching means. Cushion..... M. E. Brooke
Tire clamping device. Pneumatic..... M. C. Schweinert et al
Tire. Pneumatic..... F. E. Case
Tire. Pneumatic..... A. Frey
Tool. Combination..... C. L. Porter
Tool. Multiple bit..... J. H. B. Bryan
Tool support..... H. J. Hoegh
Tooth regulator..... J. E. Canning
Towing system..... H. W. Alden
Toy windmill..... W. C. Wunder
Trace carrier..... J. Reichert
Tramways. Rope and bucket clip for automatic aerial wire rope..... B. C. Riblet
Transformer..... W. S. Moody
Transformer protection..... W. S. Moody
Trick house..... A. B. Griffen
Trolley..... J. A. Norton
Truck bolster. Car..... S. P. Bush
Truck. Monorail car balancing..... H. H. Tunis
Trunk strap..... F. A. Lyman
Tweezers and blackhead extractor. Combined..... F. J. Boehm
Twine holder..... M. F. Ehlert
Typewriter carriage mechanism..... J. B. Hammond
Typewriter desk..... L. E. Lightner et al
Typewriting machine..... A. T. Brown
Typewriting machine..... W. J. Baron et al
Unhairing machine..... W. B. Turner
Valve. Air brake..... E. F. Richardson
Valve. Flushing..... E. J. Bloom
Valve. Gate..... D. F. Henry
Valve. Globe..... J. Struben
Valve indicator. Gate..... J. C. Meloon
Valve mechanism. Engine..... C. D. Stevens
Valve. Pressure regulating..... R. P. Kipp
Valve. Safety..... A. Ashworth
Valve. Trap back-pressure..... W. J. Wood
Vapor discharge device. Adjustable..... P. H. Thomas
Vehicle body..... L. Priest
Vehicle brake..... T. L. & T. J. Sturtevant
Vehicle. Convertible..... C. H. Stratton

Vehicle frame..... N. T. Harrington
Vehicle. Motor..... C. Schmidt
Vehicle power transmitting mechanism. Motor..... L. W. Campbell
Vehicle running gear. Motor..... J. Warrington et al
Vehicle signaling apparatus. Motor..... W. S. Glines
Velocipede..... F. M. Thompson
Velocipede. Railway..... A. S. Reed
Vending machine. Coin controlled..... J. L. Miller
Vent. Beer barrel air..... M. J. Chaplin
Ventilating system..... M. E. Cooley
Vessel..... L. R. Moore
Vibrations. Means for producing..... B. Wolverton
Wagon. Dump..... M. C. Ernsberger
Wagon top box fastener..... J. Deuber
Wall clean-out and back-vent fitting..... H. J. Luff
Wall cooling apparatus..... L. O. Brightbill
Wall slab..... D. E. Roberts
Wall tie for brick and veneer structures..... C. J. Schreck
Warp beam let-off rims. Guard for..... J. W. Killpatrick et al
Washing machine..... N. T. Worthley
Washing machine motor..... W. E. Wagner
Watch movements in their cases. Means for securing..... F. Chevillat
Water bag and fountain syringe. Convertible..... T. O. Gasaway et al
Water chute..... T. Folks
Water elevator..... J. Peterson
Water heating apparatus..... E. W. Neu et al
Water meter..... J. Thomson
Water meter..... A. E. Gumz et al
Water of reservoirs, dams, banks or the like. Device for drawing off the surface..... T. Lydon
Water wheel..... A. F. Sparks
Weighing machine feeding mechanism..... A. L. F. Mitchell et al
Weight verifier..... A. A. Caille
Welding machine. Electric chain..... A. F. Rietzel
Wheel sizing device..... A. A. Zimmerman
Windmill and pump coupling..... S. H. Guthrie
Windmill..... C. D. Tabor
Window or door stop..... H. J. Weeks
Window screen and weather strip. Combined..... H. Eagon
Window stop adjuster..... A. Weingaertner
Wire cloth on door or window frames. Machine for stretching..... W. A. Hoffman et al
Wire fabrics. Loom for weaving woven..... A. Haidekker et al
Wire stretcher..... C. Neal
Wire twisting mechanism..... E. H. Vogel
Wood cutting machine..... R. J. Lines
Wrench..... H. Sasko
Wrench..... F. L. Williams et al
Wrench..... H. D. Aupke
Wrench..... C. M. Benson
Wrench..... J. Munro
Yoke center. Neck..... J. C. Harpham

DESIGNS.

Brush back..... 2 pats..... W. C. Codman
Closet bowl..... W. H. Lloyd
Glass vessel..... H. Siegel
Mirror back..... W. C. Codman
Plate or dish..... W. A. Pickard
Sandal..... S. Borchardt
Stove..... A. A. Specht
Type. Font of..... W. Brandev
Type. Font of printing..... A. S. Orchard
Wall covering..... G. A. Haslup

Issued March 7, 1905.

MECHANICAL PATENTS.

Acetylene generator..... A. Yancey
Acetylene generator feeding device..... A. Yancey
Advertising button. Changeable..... H. E. Smith et al
Acar-agar and product of same. Manufacturing limp solutions of..... W. Riebensahm
Air brake apparatus..... C. E. Turner
Air brake mechanism..... H. E. Haddock
Air brake system..... I. M. Simons
Air regulating and indicating device. Compressed..... C. H. Richwood
Air separator and water seal fitting..... S. V. Sharood
Air ship..... H. E. Honeywell
Animal trap..... A. Brest
Arm rest..... W. S. Dunham
Astragal bracket..... R. N. Schalkenbach
Automatic sprinkler..... C. R. Garrett
Awning operating mechanism..... T. J. Daniels
Axle. Road vehicle..... H. M. Butler
Baking pan cleaning and greasing machine..... A. Berg et al
Baking pan cleaning and greasing machine..... G. H. & C. H. W. Cliff
Baling machine. Cotton..... W. A. McGregor
Band applying implement..... J. J. Mook
Band cutter and feeder..... F. Eves
Barre. Hopper..... J. Volker-Tsvzdorff
Basin cover. Catch..... H. W. McDonald
Battery cell. Galvanic..... A. T. Sanden
Bed. Folding..... J. G. Peace
Bee feeder..... I. L. Roberts
Bicycle attachment..... R. R. Pooner
Bicycle brake..... I. Chambliss
Billiard cue..... T. N. Whitehouse et al
Bird trap..... O. H. & F. H. Voelkerding
Blind fastener..... T. A. Upson
Blotting pad..... C. I. Hasman
Blower. Steam..... C. E. Googins
Blowing engine or compressor..... G. B. Petsche
Boiler pressure regulator. Automatic..... H. E. Parson
Boiler tube cleaner..... H. F. Weinland
Boiler tube fastening..... C. E. Throop
Boiler tube sheathing..... J. D. Alexander
Book with cloth leaves..... H. S. Dean
Bottle..... R. R. Doemer
Bottle filling machine..... F. J. Lewis
Bottle filling machine..... O. Selg
Bottle. Medicine..... F. S. Victor
Bottle. Non refillable..... O. Yates
Bottle stopper..... I. A. Rommer
Bottle stopper..... E. Campbell

Bowling alley pin resetting device..... B. A. Stevens
Boxes, &c. Folding apparatus for..... R. E. Fischer
Brake shoe..... J. S. Thompson
Branding iron..... S. Kleinhammer
Brass band instrument..... C. H. Barrett
Brick kiln hydrocarbon burner..... J. Schurs
Brick press..... E. D. Church
Bridle bit..... M. E. Buck
Briquet press..... J. Treadwell
Building block..... B. W. Davis
Building block forming machine..... H. Gutteridge et al
Bushing. Rawhide..... F. Latulip
Butter. Refining..... M. H. Greeley
Button. Collar or cuff..... W. Hair et al
Cabinet for stationary, &c..... H. Hatch
Calcium carbide ingots. Utilizing scale from..... I. R. Edmonds et al
Camera. Photographic..... L. Borsum
Can cleaning machine..... W. Rubin
Can opener..... A. Peterson
Candy rolling machine..... F. J. Lautner, Jr
Car..... F. S. Ingoldsby, Jr
Car construction..... 2 pats..... W. M. Smith
Car construction. Railway..... G. M. Brill
Car. Dumping..... W. R. Cliffe
Car electric lighting apparatus. Railway..... W. F. Richards et al
Car for railways. Hydraulic hand..... W. H. Fisher et al
Car grab handle. Railway 3 pats..... S. M. Curwen
Car indicator..... M. Stuhler
Car platform. Extensible..... C. Scott
Car seat..... S. M. Curwen
Car seat..... C. K. Pickles
Car seat and guard..... C. K. Pickles
Car seat. Walk over..... C. K. Pickles
Car underframe. Metallic..... J. M. Hansen
Car window..... J. A. Brill et al
Cars. Electrical annunciator for trolley..... I. J. Bradshaw
Carriage brake. Baby..... R. C. Starbard
Carrier track..... W. Mitchell
Cash register..... C. Laurick
Casing head..... F. F. Howe
Casting apparatus. Metal..... J. Barker
Check protector..... G. W. Beebe
Chest weight apparatus..... M. B. Reach
Churn..... D. A. Sprague
Clock striking mechanism..... R. Nussberger
Clothes line holder..... J. F. Koepf
Coal dust feeding apparatus..... J. V. Culliney
Cock operating means cylinder..... J. H. Sewall
Coin controlled mechanism..... L. F. Rubens et al
Collapsible rack..... M. A. Connard
Commutator..... G. Grabosch
Commutator for electric machines and making same..... F. A. Feldkamp
Compound block..... L. G. Hallberg
Concrete wall forming machine..... G. B. Truxell
Conveyer system. Pneumatic..... A. H. Morton
Cooking apparatus. Automatic..... O. Hutzler
Cord making or covering machine..... A. J. Bulbolz
Corn cutting machine..... C. Leidy et al
Cottage. Outing..... W. W. Keen
Cotton chopper..... J. B. Nix
Cotton gin..... J. T. Fuller
Crossing. Bottless..... J. Stolz
Cuff holder..... J. W. Shute
Cultivating plants by electricity..... E. Pilsoudsky et al
Cultivator attachment..... G. W. Disney
Cultivator attachment..... E. H. Burks
Curling iron..... G. F. Shields
Curtain fixture..... C. K. Pickles
Curtain pole..... L. Evans
Cyanid treatment apparatus..... E. L. Oliver
Dark room. Portable..... H. E. Johnston
Dental plates. Manufacturing..... J. P. Matheret
Dental root extractor..... W. S. Beazley
Desk. School..... J. W. Johnston
Die presses, &c. Automatic feed for..... C. D. McDonald
Dipping machine..... J. L. Dern
Display rack..... A. Rhoads
Door check..... A. S. Adam
Door. Revolving..... J. Wendler
Door securing device..... J. H. Greenway
Door stop and catch for vestibule or other doors..... E. S. Bucknam
Doubling and twisting machine..... J. E. Tynan
Dough dividing machine..... F. H. Van Houten
Draft rigging..... H. T. Krakau et al
Drill attachment. Ratchet..... A. B. Carl
Drying apparatus. Heating and ventilating..... T. C. Belding et al
Dumb bell..... A. F. Williams
Dumping trap..... W. Anderson
Dust collector..... A. C. Brantingham
Educational device..... F. C. Donecker
Electric cables against excess pressure. Means for protecting..... G. Zapf
Electric machine brush holder. Dynamo..... J. Burke
Electric machine. Dynamo..... J. Burke
Electric machines. Laminated core for dynamo..... J. Burke
Electric meter..... F. Darlington
Electric motor..... W. A. Layman
Electric motor..... G. Dengler et al
Electric motors. Means for maintaining synchronism in..... P. Thomas
Electric switch..... C. B. Askev
Electric time switch..... S. Stenski
Electrical distribution system..... F. Hoffman
Electromagnet and armature..... J. Weber
Electromagnet device..... W. Kaisling
Electroplating device..... G. W. Clough
Elevated carrier..... W. Loudon
Elevator safety device..... E. L. Mater
Engine..... R. Whitehill
Engine cooler and muffler combined. Gas..... T. L. & T. J. Sturtevant
Envelope opener..... N. J. Rlomgren
Excavator dipper tooth..... J. A. McCaskey
Eyeglasses, &c. Holder for lenses of..... G. H. Winslow
Fabric cutting machine. Woven or knitted..... J. H. Vincent
Fabric marking machine..... K. A. Werle
Fare receipt. Duplicated cash M. C. Flahavan
Fat graining tank..... B. F. Williamson
Feed rack and manger..... G. B. Warren
Feeding mechanism..... C. J. Bellamy
Fence machine. Wire..... P. Frantz
Fence post..... S. O. Campbell
Fence post..... C. Cook
Fence post..... M. L. Oliver
Fire box..... W. Kemmerich

Fire extinguisher. Automatic..... J. D. Williams
Fishing bait. Artificial..... W. Heckeler
Flour, &c. Machine for dressing or separating..... H. J. F. Rose
Flue expander..... P. Dixon
Fluid meter..... J. W. Ledoux
Fluid motor. Reversible..... H. A. Duc, Jr
Fluid pressure brake..... G. W. Butcher
Fluid pressure motor. Rotary..... G. J. Murdock
Fuel. Composition..... C. H. Carpenter
Fuel economizer..... W. E. Cole
Furnace..... D. D. Hughes
Fuse primer. Electrical..... F. M. Quinn
Garment fastener..... F. Franz
Garment supporter clasp..... F. D. Harding
Gas burner..... R. T. Malin
Gas generating apparatus. Acetylene..... W. B. Jones
Gas generator. Acetylene..... H. Goodacre
Gas. Making..... J. C. H. Kramers et al
Gas pipe testing device..... M. J. Erk
Gate..... E. J. Stanley
Gate..... W. Kiddoo
Gear for maddrels or other shafts. Reversing..... T. A. Oulm
Gearing..... C. & J. Dietz
Glass articles. Apparatus for producing hollow..... P. T. Sievert
Globe..... M. Manson et al
Glove..... D. F. Morgan
Gong..... E. S. Bucknam
Gopher exterminating compound..... N. C. Bille
Governor..... H. Kroner
Grain dump and elevator. Portable..... J. Locke
Grain elevator. Pneumatic..... F. Schacht
Grain sorter or separator. 2 pats..... F. L. Block
Grease cup..... J. R. Hall
Grinding mill..... J. C. Mole
Gun. Breakdown..... G. Toborg
Gun. Recoil operated..... V. C. Tasker
Gun sling..... L. Powell
Gun tangent scale telescope..... C. P. Goerz et al
Hame hook..... T. G. Gordon
Hammock..... J. B. Patterson
Harrow riding attachment..... D. K. Wilson
Harvester. Beet..... H. M. Fellenz
Hay loaders. Adjustable hay director for..... E. E. Knight
Hay rake..... S. Roth
Hay rake and stacker..... J. Craig
Heater..... H. Landrus
Heating or cooling apparatus..... J. Heizmann
Heating system..... F. W. Robertshaw
Heating system. Indirect..... E. R. Knapp
Heel trimming machine..... B. F. Mayo
Hook and eye..... E. E. Baruch
Horse detacher..... C. Frenzel et al
Horseshoe calk..... F. A. Kunze et al
Horseshoe roughener shoe..... A. Smith
Hose coupling..... M. Hirth
Hose coupling..... W. H. Albee
Hydraulic press..... J. T. Schaffer
Hydrocarbon feeder system..... R. F. Schroeder
Ice cream freezer..... C. P. Hudson
Ice creener..... O. A. Norlund et al
Ice making apparatus..... A. O. Frick
Indicator..... C. S. Clark
Injector burner..... A. C. Rush
Inspirator..... W. R. Park
Iron. Hardening..... F. L. Ramon
Ironing board and step ladder. Combined..... J. E. Storeking
Jar closure and fastener..... J. P. Young
Jar opener and closer..... C. Braunschweiger
Joist hanger..... G. Lane
Knife blade holder..... L. Weston
Knob..... J. Assel
Knob. Stove..... R. G. Cornforth
Lamp burner..... A. P. Woodward
Lantern. Tubular..... J. H. Hill
Last..... A. G. Fitz
Lasting machine..... C. De Minico
Latch Gate..... J. J. Akre
Leather, leather-board, &c. Machinery or apparatus for skiving..... C. H. Keats
Ledger. Loose leaf..... H. Elino et al
Level Spirit..... H. N. Northoff
Leveling instrument. Automatic..... I. W. Belven
Linotype machine..... P. T. Dodge
Linotype machine..... L. L. Kennedy
Linotype machine..... D. Perri-Palmedo
Linotype machine..... G. F. Wallin
Liquid dispensing device..... T. P. Briody
Liquid fuel burner..... J. B. Smith et al
Locking mechanism. Electrically operated..... J. Nordenberg
Loom..... F. E. Zengerl
Loom harness straps. Machine for making..... I. R. Fliton
Loom stop motion detector..... M. O. Steere
Loom sweep sticks and picker sticks. Connector for..... H. Walmsley et al
Loom warp guiding means..... C. H. Draper
Loom warp stop motion..... J. E. Lemay
Lubricator and throttle valve. Combined..... C. Hultquist
Lumber or timber piling machine..... H. M. Russ
Mail bag delivery device..... J. S. Kauffman
Mail carrier..... A. J. Kennedy
Mail pouch catcher..... L. W. Barker
Massage instrument. Dynamo electric..... A. Barret et al
Mat..... T. C. McPherson
Matrix machines. Elevator mechanism for circulating..... B. F. Bellows
Merchandise, &c. Means for handling..... C. W. Hunt
Metal article grinding or polishing machine..... C. Wiesener
Metal cutting machine..... A. C. Calkins
Metallic post..... L. C. Sharp
Mold..... J. P. Plattenberger
Mold cutter..... W. H. Ford
Molding machine..... H. E. Pridmore
Mower. Lawn..... J. H. Hall
Mule. Self acting..... F. Houget
Musical instrument controlling sheets. Sool for..... M. & E. G. Clark
Musical instruments. Electrical attachment for..... J. Weber
Nozzle..... C. H. Smith
Numbering machine..... F. W. Wicht et al
Nutlock washer..... 2 pats..... W. H. Parker
Oil burner..... S. D. Roger
Oil cup..... V. Royle
Oil or gas burner..... T. Vantine
Ore concentrating machine..... G. R. Duncan
Ore separator. Magnetic..... L. G. Rowand
Organ..... J. Binnig
Organ action..... E. M. Skinner
Packing ring..... W. Ord

Pail, Dinner J. E. Humphrey
 Paint remover and making same A. Corti
 Paper bag holder B. L. Borstad et al
 Paper making roll H. Parker
 Passenger recorder C. F. Jackson
 Peeling fruit C. J. Vernon
 Perforating, embossing, or indenting device E. G. Bates
 Perfumes and making same. Materials for 2 pats. G. Merling et al
 Piano. Electrically actuated J. Weber
 Piano player case J. Hattermer
 Pick, Miner's M. Haidsoeg
 Pictures or designs. Producing. H. C. Mercer
 Pipe bending apparatus L. H. Brinkman
 Pipe coupling J. McDonald
 Pipe coupling. Train L. M. Sartain
 Pipe cutter. Ratchet F. M. Sylvester
 Pipe elbows. Device for forming standard L. H. Church
 Pipe screw threading machine. Sheet metal E. Zeh
 Pipes or tubes, &c. Composition of matter for forming J. S. Gregg
 Planer. Rotary W. J. Hagman
 Planter and fertilizer distributor. Cotton G. L. Brown
 Planter. Corn C. R. Davis
 Planter. Corn H. Schielke et al
 Plow P. W. Reileneider
 Pneumatic despatch apparatus O. S. Pike
 Pottery molding machine L. Mary
 Power system C. C. Peck
 Power transmitting device S. W. Rushmore
 Power transmitting mechanism T. L. & T. J. Sturtevant
 Preservative for foods, &c K. Rucker et al
 Press plate A. W. French
 Pressure regulator P. Kelley
 Pressure regulator W. F. Krichbaum
 Printing apparatus H. Smith
 Printing clothing tickets. Machine for A. Antoine
 Printing machine. Blue E. T. Cope
 Printing press tripping mechanism T. C. Dexter
 Projectile for gunnery practice. Ordnance E. G. Wang
 Propeller. Ship's F. H. Grawert-Zellin
 Pulley and bearing therefor. Loose A. N. Dethlefsen et al
 Pump A. A. Radovanovic
 Pump. Hydraulic R. H. Russell
 Pyrocatecholmonoalkylethers. Making compounds of H. C. Fehrlin
 Rack A. M. Padmore
 Rail guard. Electrical 2 pats. L. B. Stillwell et al
 Rail joint J. A. Hamilton
 Railway brake R. Hallot
 Railway crossing frog. Interchangeable L. E. Keller
 Railway gate R. M. Jenkins
 Railway. Inclined S. E. Jackman
 Railway joint T. H. Tracy
 Railway rail F. Bertgen
 Railway signal. Automatic J. C. Lambert
 Railway signals. Circuit controller for electric H. B. Snell
 Railway switch S. R. Flowers
 Railway system. Third rail electric T. J. Casey et al
 Railways and vehicles for transporting light loads. Construction of D. Monnier
 Range. Gas A. J. Allison
 Razor. Safety A. J. H. Lefebvre
 Receptacle. Covered J. J. Schuler
 Reeling machine J. E. Tynan
 Revolver, &c. Search light for B. C. Ribet
 Rivet holder O. F. Botstoid
 Rivet punching out machine N. M. McDaniel
 Rock drill C. T. McCormick
 Rock drilling machine valve J. E. H. Grose
 Rotary engine C. P. Rhoey
 Rotary engine C. W. Carman
 Rotary engine W. M. Ewing
 Rotary motor T. G. Saxton
 Rotary piston engine J. Probst
 Rubber goods. Composition for preserving india O. F. Benton
 Ruler for cutting cloth on the bias H. A. Stempel
 Ruler. Multiple scale K. M. Pauli
 Sad iron M. E. Fallon
 Sash center C. J. Caley
 Sash fastener W. M. Taylor et al
 Saw J. H. Miner
 Sawing machine. Handhold B. J. Pye
 Sawing machine. Wood G. Sebrell
 Sawing machine. Wood H. A. Litz
 Seal. Newspaper safety E. Cizeau
 Separating apparatus. Centrifugal E. G. N. Salenias
 Sewer cleaning device M. T. Connolly
 Sewing machine stay cutting attachment W. L. Marsh
 Sewing machine thread controlling device E. B. Allen
 Shade and curtain bracket. Combined adjustable window C. A. Haas
 Shade bracket. Adjustable C. Heilrath
 Shading device R. L. Crigler
 Shears J. Polkowski
 Sheet holder. Tabular A. F. Nagle
 Sheet metal. Expanding slitted L. E. Curtis
 Shoe fastening device C. T. Odema et al
 Shoe fastening device G. E. Peirce
 Shoe holding device W. J. Dunn
 Sign R. M. Pearson et al
 Signaling apparatus. Electrical L. Despradeis
 Signaling device. Locomotive cab J. W. Clark
 Skin stretcher A. W. Andrews
 Skirt hanger F. H. Parkhurst
 Slicer. Fruit W. H. Bontell
 Smoke consuming furnace J. B. Harris
 Sole dampening machine. Boot or shoe L. A. Casgrain
 Spindle G. B. McCracken
 Spiral pipe J. H. Taylor
 Spoon. Medicine G. C. Hobein
 Sprocket wheel R. S. Townsend
 Starch making apparatus W. H. Uhland
 Station indicator. Electrically operated E. K. Adams
 Steam drying device H. V. Arnold et al
 Steam engine. Compound W. A. Drewett

Steam generator C. Renard
 Steam reheater H. A. Allen
 Steel plates. Carburizing A. F. Mitchell
 Steering gear A. B. Fowler
 Still R. Albach
 Stitch indenting machine J. J. Heys
 Stocking supporter W. W. Palmer
 Stone channelling machine C. M. Lymann
 Stove burner support. Gas or vapor C. V. Roberts
 Stoves. Automatic cut-off for gas J. C. Hansen
 Stovepipe support J. J. Hill
 Strainer. Valve C. H. Miller
 Street sprinkler W. J. Bole
 String cutter E. H. Painter
 Stuffing box W. J. Smith
 Surgical apparatus H. W. Phillips
 Switch L. S. Morrow
 Tag wiring machine W. W. Fuller
 Talking machine trumpet A. R. Cunniss
 Tap. Collapsible F. A. Errington
 Telephone exchange system. Automatic J. K. Norstrom et al
 Telephone repeater. Automatic E. Parsons
 Telephone system W. D. Watkins
 Telephone systems. Direct line circuit and switching mechanism for A. K. Andriano et al
 Thermostat J. E. Shepherd
 Threshing machine band cutter and feeder F. Fredeen
 Tile. Enameled sheet metal building N. Monshausen
 Tire. Pneumatic E. Large
 Tool. Pneumatic H. Leineweber
 Top roll saddle C. A. Pierce
 Trace holder 2 pats. C. Heilrath
 Train and station guide P. Flanagan
 Tramway carriages. Rope clutch for aerial E. Boucher
 Trench cutter L. C. Wemple
 Trolley J. H. Thompson
 Trolley pole. Automatic self-dropping J. Delane
 Trolley track switch. Overhead R. N. Cundall
 Trousers pressing device W. A. Smith
 Truck. Car L. W. Barber
 Truck for street cars or similar vehicles. Motor propulsion J. A. Brill
 Truck lateral motion device. Car L. W. Barber
 Tube cleaning device J. F. Stephenson
 Tunnel construction. Subaqueous D. D. McBean
 Turbine. Elastic fluid H. Zoelly
 Turbine. Steam P. Rambal
 Type machine die case equipment J. S. Bancroft
 Typewriting machine C. Gabrielson
 Typewriting machine G. B. Webb
 Typewriting machine 2 pats. O. Woodward
 Typewriting machine W. J. Barron et al
 Typewriting machine A. T. Brown
 Typewriting machine B. C. Stickney
 Typewriting machine paragraphing stop C. R. Kelly
 Umbrella holder G. A. Robinson
 Valve O. O. Storie
 Valve. Engineer's A. D. McWorter
 Valve fitting W. R. Park
 Valve. Gate R. J. Powers
 Valve gear W. F. Diden
 Vehicle J. Boothe
 Vehicle body corner W. B. C. Hershey
 Vehicle. Motor. 2 pats. W. L. Garfield et al
 Vehicle seat W. M. Thomas
 Vehicle seat brace iron W. B. C. Hershey
 Vehicle storm front M. Stief
 Vehicle wheel C. R. S. J. Hallie
 Vessel cap fastening A. Brockebank
 Vibrator C. H. Kay et al
 Wagon. Dump C. M. Haeske
 Wagon. Logging J. G. Woods
 Wains. Making non-conducting J. H. Stone
 Wardrobe W. G. Anderson
 Wardrobe. Portable C. E. Blashfield
 Washing machine P. P. Kiel
 Washing machine D. E. Howard et al
 Water heater W. E. Kay
 Water softening apparatus S. H. & P. E. Hodgkin
 Water tube boiler W. W. Shilling
 Weighing apparatus A. L. Buckland
 Well fishing tool C. W. Kroening
 Wells. Electric heater for oil or gas F. B. Waring
 Window cleaner W. Smith
 Window or door fastener C. D. Lovelace
 Wire drawing drum J. A. Horton
 Wire reeler and unreeler J. G. Bailey
 Wire stretcher and fastener F. Verhoeven
 Wood surfaces. Producing artificial J. E. Travis
 Wool washing machine J. H. Tillinghast
 Work stand. Portable I. H. Weinberg et al
 Wrench W. E. Gilchrist
 Wrench W. Whaley
 Wrench attachment J. C. Zumwalt

DESIGNS.

Bird cage base 2 pats. G. A. Glahn
 Dancing pagoda. Portable S. Miyata
 Dancing pavilion. Portable S. Miyata
 Dish or similar article. Covered C. J. Ahrenfeld
 Plate or similar article 4 pats. C. J. Ahrenfeld
 Stove J. Allingham

Issued March 14, 1905.

MECHANICAL PATENTS.

Advertising apparatus W. B. Worthy
 Agricultural implement attachment. Hand A. D. Jones
 Air brake A. J. Wisner
 Air brake deflector E. Bearss
 Automobile transmission gear G. A. Thode
 Automobile transmission mechanism R. R. White
 Awning attachment. Automatic A. I. Schwinger
 Bag holder J. Ri ey
 Bag holder and filler W. H. Stone, Jr

Balancing attachment C. E. Coons
 Baling press C. J. Luce
 Ball cleaning device H. D. Day
 Balls. Making rubber cored golf G. C. Worthington
 Baling machine J. Good
 Barometer L. F. Chaney
 Basket R. E. Lindsay
 Basket or other receptacle J. Hamilton
 Bath tub and attaching feet thereto J. A. Lefferts
 Bath tub mold J. P. Bickerstaff
 Battery steam guide C. F. Hawley
 Bean separating machine O. F. Beythan
 Bearing E. S. Farwell
 Beer or other liquid dispensing apparatus V. E. J. Dufalot
 Beet blocking machine E. J. Young
 Belt guide J. L. Crisler
 Bin C. T. Ranney
 Binding mechanism J. A. Plopper
 Blanket. Animal S. D. & E. M. Keid
 Block system J. W. Anderson, Jr
 Boiler J. P. Blauvelt
 Boiler draft regulator. Steam O. R. Sackett et al
 Boiler flue cleaner O. Donatz
 Boiler furnace S. F. Pierce
 Bolt heading machine 2 pats E. A. Moore et al
 Book holder strap. School T. E. Barton
 Book support G. L. 1. Denniss
 Bootjack J. J. McDonald
 Bottle A. A. Low
 Bottle caps. Device for removing internal F. M. Glaessel
 Bottle holder. Nursing W. J. Boyle
 Bottle mouth and neck A. A. Low
 Bottle. Non refillable H. W. Brent, Jr
 Bottle. Non refillable F. S. Heffernan
 Bottle. Non refillable L. N. Bishop
 Bottle soaking machine A. S. Lindemann et al
 Bottle stopper E. Clemens
 Bottle support and protector J. A. Leu
 Bottling machine. Liquid J. A. Hicks
 Box roller or truck B. L. Vore
 Braiding machine B. Kirsch
 Brake beam J. F. O'Connor
 Brake beam S. A. Crone
 Breast connector V. H. Mills
 Brooder A. F. Meserve
 Brush. Sanitary shaving L. Silverman et al
 Bucket. Dumping G. L. Stueber
 Buckle H. G. Evans
 Buckle. Cross line H. L. Sheldon
 Buckle. Harness W. Obermeir
 Burglar alarm and trap H. Maske
 Bushing. Rawhide E. T. Shepard
 Calendar J. M. Biggs
 Can joints. Apparatus for unsoldering sheet metal S. K. Green
 Car brake L. J. Evans
 Car brake R. Vogel
 Car coupling F. G. Smith
 Car coupling C. A. Tower
 Car coupling A. Rittersbach
 Car draft rigging. Railway R. M. Zimmerman
 Car draft rigging. Railway J. F. O'Connor
 Car frame E. I. Dodds
 Car hauling and controlling mechanism J. G. Scott
 Car. Railway E. A. Liapp
 Car register F. A. Schierberg
 Car replacer C. E. Wise
 Car sand box. Street S. W. Phelps
 Car stinger support C. A. Lindstrom
 Car wheel J. T. Duff
 Car window sash. Street E. T. Robinson
 Cars. Portable loop for dump H. A. Penberthy et al
 Carbide feeding device W. Sinclair
 Carburizer H. D. Studabaker
 Carburizer. Gas engine J. F. & M. Hiltcher
 Carpet cleaning apparatus A. E. Moorehead
 Carpet fastener. Stair S. Kahn
 Carpet sweeper bails. Device for attaching handles to D. F. Starkweather
 Cartridge F. H. Bowly
 Carving machine B. W. Tucker
 Chair table L. Wall
 Cheese cutter F. P. Dunn
 Chimneys, &c. Appliance for use in building W. T. Weightman
 Chromates. Making R. Suchy
 Circuit breaker. Automatic E. P. Wetmore
 Cistern cleaner and water purifier T. S. Murray
 Cistern cover C. W. Axt et al
 Clamping and attaching device T. Biel
 Clasp A. G. Kunde
 Clutch O. S. Beyer
 Clutch shifting device C. E. Curtiss
 Coal separator F. H. Emery
 Column. Hollow wooden E. Westermich
 Combination gage F. J. Stemmerich
 Compressor unloading device F. W. Parsons
 Computer. Lumber J. E. Chritton
 Condenser J. M. Keller
 Controlling device L. S. Walle
 Corkscrew G. L. Kleiser
 Corn husking apparatus C. C. Welsh
 Cornic making machine. 2 pats J. W. Yates
 Cotton, &c. Compressing C. J. Luce
 Cotton picker J. M. Searles
 Coupling J. L. Crisler
 Cuff fastener C. W. Barnes
 Cultivator S. N. Hensch
 Cultivator. Riding P. Jarvis
 Curb. Pavement F. E. Cudell
 Currency for safes, &c. Apparatus for marking A. A. Petersen
 Cuspidor H. Malick
 Cyanid agitator E. Stevens
 Damper P. Fauth
 Dental forceps I. P. Norton
 Dichlor dimethyl-fluorane and making same P. Julius
 Dispensing apparatus. Coin controlled R. G. Trowbridge
 Displaying advertisements, &c. Apparatus for J. F. Blyth
 Ditching jack R. Rue
 Door apparatus. Revolving J. A. Pearson
 Door control. Pneumatic C. M. Warner
 Door, doorway, and threshold for air tight inclosures S. P. Stevenson
 Door. Hinged lifting N. C. Schommer
 Door. Lifting N. C. Schommer
 Door securer and alarm combined D. N. Stewart
 Draft equalizer J. Dobberstein
 Draft equalizer cushioning device S. Patzler

Draw bar G. Stevenson
 Dredging system W. H. Le Chard
 Drinking utensil M. L. Williams
 Driving mechanism. Reversing E. J. Rector
 Edge runner and pan C. Gielow
 Electric conductor union F. W. Sorg
 Electric machine. Dynamo H. G. Reist
 Electric machines or motors. Brush holder for dynamo J. F. Card
 Electric motor R. Klemm et al
 Electric open switch and stop signal J. B. Smiley
 Electric solenoid L. S. Walle
 Electrical conductor junction box J. Fountain, Jr
 Electrical distribution system R. N. Chamberlain
 Electrolysis. Apparatus for effecting H. Philipp
 Electroplating apparatus H. & C. H. Fleischer
 Elevator control. Electric N. O. Lindstrom
 Engine cylinder C. Smith
 Engine nozzle. Turbine E. S. Farwell
 Engine sparking igniter. Explosive I. E. Hindman et al
 Engine speed attachment. Gas A. Buchner et al
 Engines. Electric sparking igniter for explosive G. McCadden
 Excavating machine J. D. Buchanan
 Excavating machine, &c. Movable platform for F. P. J. D. & A. L. Leach
 Expansion bolt F. H. Evans
 Explosive engine. Revolvable C. A. Sawtelle
 Eyeglasses T. H. Pritchard
 Feeder. Stock T. G. Harris
 Feeding device. Automatic material L. J. Monahan et al
 Fence post. Concrete R. H. Lathers
 Fence post mold J. B. Engstrom
 Fence stretcher M. Reese
 Fencing barb. Wire U. Durand
 Fertilizer distributor N. A. Butler
 Fifth wheel M. J. Griffin
 Filing device C. C. Spengler
 Fire curtains. Auxiliary release for theatrical J. A. Clancy
 Fire escape F. A. Parker
 Fire escape. Portable D. E. Landis
 Fire sprinkler and alarm system. Automatic J. Fiddes et al
 Firearm magazines. Device for indicating the number of cartridges in F. Gottardi
 Fireproof floor and ceiling construction A. Pfeiffer
 Fish hook W. Henckler
 Fisherman's box and life preserver. Combined W. Fisch
 Fishing reel F. Fullilove
 Fishing spear J. M. Lobit
 Flat iron cover A. E. Mattern
 Florist's bench C. J. Pult
 Flowers. Machine for manufacturing artificial M. L. Beistle
 Flowers. Means for preserving and exhibiting R. R. Spicer
 Fluid distributing system. Pneumatic F. M. Griswold
 Fluid motor N. A. Palmer
 Fodder shredder C. C. Welsh
 Food cake. Making cattle M. J. Bouteau
 Force feed lubricator C. J. Gustafson
 Fuel economizer F. W. Green
 Furnace front arch J. H. Foote
 Gage or gaging tool A. L. Beardsley
 Game apparatus D. H. Tabert
 Garment clasp E. N. Humphrey
 Garment. Combination M. Bunsick
 Garment stretcher L. Nelson
 Gas. Apparatus for the manufacture of water J. C. H. Kramers et al
 Gas burner C. Neilson
 Gas burner. Acetylene S. L. Kistler et al
 Gas cut off. Automatic J. B. Brown
 Gas engine 2 pats. C. J. Rousseau et al
 Gas generator feeding means F. E. Guilbaud
 Gas. Making and delivering B. Loomis et al
 Gas manufacturing apparatus B. Loomis et al
 Gas washer H. Geides
 Gas washer P. Meehan
 Gate J. W. Elnot
 Gate J. H. White
 Gearing P. Dietz
 Girdle A. G. Saart
 Glass blowing machine H. Hilde
 Glass rinsing means H. Pein
 Governor E. S. Farwell
 Governor. Turbine engine E. S. Farwell et al
 Grader. Elevating O. E. Moats
 Grading and ditching machine L. V. Brophy
 Grain binder shocker H. Welch
 Grain separator sieve E. Armstrong
 Grave coping S. B. Rickards
 Grinding or crushing head V. W. Mason, Jr
 Grip driving appliance W. L. R. Hall
 Grubber W. C. House
 Gun. Bow S. L. Saunders
 Gun case F. L. Sheldon
 Gun. Gas operated machine M. F. Smith
 Gun. Magazine bolt M. P. Richards
 Gun trunk L. B. Taylor
 Hair dressing device J. W. Burby
 Hair drier D. J. Buckley
 Hammock and canopy support. Combination W. Vincent
 Hand rake W. C. Winfield
 Hand strap U. McClinchie
 Harness attachment J. T. Bass
 Harness attachment M. V. Root
 Harrow riding attachment C. H. Bayston
 Harvester S. K. Dennis
 Harvester. Beet H. F. Barber
 Harvester finger guard. Pea G. P. Klumb
 Heat interchanging apparatus G. T. Voorhees
 Heel W. F. Zarwell et al
 Hoisting device R. McGahey
 Hook A. D. Hamilton
 Hook and eye G. G. Fandy
 Horse or cattle blanket T. & G. Clemetson
 Horseshoe J. E. G. Geisel
 Horseshoe. Nailless N. W. La Clair
 Hub wrench R. L. Hicks
 Hydrocarbon burner F. E. Grout
 Incandescent mantle support R. S. Aliyn
 Indexing machine rack J. J. Burke
 Inhaler W. M. Ricketts
 Inhaler H. L. White
 Ink pad G. C. Bessonet
 Inking pad D. L. Clayton
 Insulated rail joint G. L. Hall
 Insulating lining N. Marshall
 Insulating sheet or structure C. S. Bird

- Internal combustion engine..... C. W. Weiss
 Internal combustion engine..... H. J. Leighton
 Iron and steel. Manufacture of..... J. J. Hudson
 Ironing board and table. Combined..... S. K. Davis
 Jar closure fastening device..... F. Canfield
 Journal bearing..... A. C. Schultz
 Keyhole guard..... J. Kohonsek
 Kitchen and dining table. Combined..... S. Astalos
 Knitting machine. Hosiery..... A. M. Pigeon
 Knitting machine take up..... L. C. Huse
 Knives. Seamless combination ferrule and
 bolster for..... G. S. Hastings
 Knob spindle attachment..... A. Hitt
 Ladder. Ship..... P. Bracegirdle
 Lamp guard..... W. L. Browne
 Lamp shade and reflector. Combined..... A. P. McArthur
 Lamp socket..... H. Bayer
 Lavatory and lavatory support..... J. C. Reed
 Lawn trimmer..... C. H. Schick
 Lead. Manufacturing white..... W. H. Rowley et al
 Leaf turner..... C. J. Coulter
 Leather working machines or the like. Oper-
 ating tool for..... J. Rood
 Lifting jack..... W. H. Oliver
 Line selective system. Party..... F. P. O'Connor et al
 Liquid container..... O. J. Panches
 Liquid filling apparatus..... S. Schlangen
 Lock marking gage. Door..... A. Carlson
 Locking bar pipe..... G. J. Hoskins
 Locomotive..... P. F. Dudson
 Loom pattern mechanism..... R. Crompton
 Loom shuttle. Hand threading..... C. E. Sackett
 Loom temple..... W. F. Draper
 Loom warp stop motion..... C. E. Chase
 Looping and tying machine..... S. A. Miller et al
 Lubricator..... D. R. MacBain
 Map cabinet..... G. W. Barnett
 Massage apparatus..... E. W. Schneider
 Massage machine..... G. F. Trotter
 Mat..... R. L. Horsley
 Measuring tape holder..... W. J. Seep
 Metal treating furnace..... J. Morat
 Metals from ore by electricity. Extracting
 mechanism..... E. L. Priest
 Meter recording mechanism. Electric..... C. H. Thordarson
 Meters. Electric central station recording
 mechanism for..... C. H. Thordarson
 Milking apparatus..... W. H. Lawrence
 Milking machine..... F. Ljungstrom
 Milking machine..... B. Burrell
 Milking machine supporting harness..... F. Ljungstrom
 Mineral separating and concentrating appar-
 atus..... G. A. Goyder et al
 Moistener. Envelop..... J. Crowther
 Mold..... J. B. Petrie
 Mold..... C. C. Mitchell
 Mold..... O. A. Stempel
 Mold coating apparatus..... C. Merritt et al
 Molding machine..... H. A. Battenfeld
 Molding machine..... J. N. & H. A. Battenfeld
 Molding machine. Adjustable..... I. L. Landis
 Mower..... S. K. Dennis
 Muff..... W. Grushoff
 Muffler..... A. P. Brush
 Musical wind instrument..... G. L. Wiser et al
 Nailing machine..... J. H. Greenstreet
 Needle case..... P. A. Curtin
 Numbering machine..... E. G. Bates
 Nut lock..... H. Schuette
 Nut lock..... A. A. Long
 Oil can holder..... F. H. Spicer
 Oil elevator..... P. H. Davitt
 Onion cleaner..... F. Griffiths
 Ore roasting furnace..... H. M. Heath et al
 Oven. Toasting..... R. Grace
 Overalls..... M. Colstrom
 Packing machine..... D. L. Eustice
 Packing Rod..... C. R. Law
 Packing. Shaft..... F. E. Getts
 Pan and stove lid lifter. Combined..... A. M. Moy'an
 Paper drying cylinders. Apparatus for remov-
 ing water from..... J. White
 Paper hanging device. Wall..... C. F. Caswell
 Pen filling device. Fountain..... G. N. Byl
 Pen. Fountain..... T. E. Ambrose
 Pen. Fountain..... F. W. Bender
 Photograph..... L. Devineau
 Photographic exposure meter..... C. W. Dake
 Photographic print washing apparatus..... E. L. Johnson
 Photographic printing apparatus..... H. H. McFutire
 Piano actions. Pianissimo device for..... W. & C. Kreter
 Piano case..... M. F. Richardson
 Pipe coupling..... G. A. Fullipp
 Pipe expanding and cutting tool..... L. D. Lovekin
 Pipe expanding and flanging machine..... L. D. Lovekin
 Pipe hanger..... J. M. Bruce
 Pipe joint. Locking bar..... G. J. Hoskins
 Pipe threading die..... H. Jansen
 Pipe wrench..... J. Adams et al
 Planter. Cora..... L. H. McCormac
 Plow. Disk listing..... J. D. Smith
 Plow foot lift..... C. R. Davis
 Plumbing traps or the like. Closure for..... J. R. Duncan
 Pole guard..... J. Soderberg
 Polishing machine..... I. Shaver
 Potato bug picker..... L. E. McGovney
 Prossering and flue-beading tool..... T. V. Freebury
 Pulley, gear, and heave..... W. Brinton
 Pulp beating engine..... J. White
 Pulp strainer..... F. E. Hemings
 Pump..... E. E. Resor
 Pump..... A. A. Ball, Jr
 Pump and piston rod. Combined..... J. F. Leary
 Pump. Force..... R. F. George
 Pump or turbine. Rotary..... E. Hopkinson et al
 Pump. Rotary..... D. E. Virtue
 Pump valve..... J. M. Bassett
 Pumping apparatus. Air..... T. H. J. Leckband
 Punching press..... L. L. Barber
 Radiators, &c. Adjustable foot rest for..... E. Terry
 Rail chair..... J. M. Young
 Rail fastening..... G. E. Lynch
 Rail joint..... W. Davis
 Rail joint connection..... J. Graff
 Railway crossing safety gate..... A. C. Layman et al
 Railway danger signaling device..... E. de Senan
 Railway joint fish plate..... D. C. Johnson
 Railway motor control..... C. P. Steinmetz
 Railway signal..... E. L. Morgan
 Railway switch operating means..... R. C. Bullough
 Railway tie..... A. M. Moylan
 Railway tie..... F. C. Wright
 Railway tie..... J. J. Floyd
 Railway tie..... J. A. Siferd
 Railway tie and rail fastening device. Metallic
 J. H. Killinger
 Railway tie. Metallic..... H. W. Avery
 Railway track structure..... G. M. Ervin
 Reciprocating engine and pump having rotary
 operating mechanism. Air or liquid..... G. W. Johnston
 Refractory articles. Manufacturing..... P. Klein
 Register actuating mechanism..... W. W. Johnson
 Reins. Multiple driving..... D. S. Wilson
 Relay..... M. Setter
 Relay..... R. H. Manson
 Reminder ring. Expandable..... C. T. Whitsett
 Rock drills motors. Means for coupling..... J. H. Redfield
 Rotary engine..... J. D. Buchanan
 Rotary engine..... R. Nass
 Rubber tired wheel..... R. Mulholland
 Sack or bag..... R. Graham
 Safety pin..... J. M. A. W. Zimmermann
 Safety pin..... A. W. Straight
 Sash or screens. Numbering device for storm
 E. A. Crosby
 Sash pivoting device. Ventilating..... C. N. Langdon et al
 Sawing machine..... A. G. Grice
 Sawmill carriages. Pneumatic setting ma-
 chine for..... A. H. Masters
 Scoop..... A. Hetland
 Scraper. Wheeled dumping..... J. O. E. Krohn
 Screen..... J. W. Myers
 Screening machine..... J. O'Laughlin
 Seal and lock. Automatic wrapper..... E. F. Webber
 Sealing means for vessels..... J. M. Hicks
 Sealing means for vessels. Secret..... A. A. Low
 Sectional wheel..... F. C. Biggert, Jr
 Self-oiling wheel..... W. W. Wilson
 Sewage purifying and garbage consuming ap-
 paratus..... F. P. Smith
 Sewing machine. Buttonhole..... E. B. Allen
 Sewing machine motor attachment..... F. P. Huyck
 Sewing machine presser foot lifting mechan-
 ism..... J. M. Merrow
 Sharpener. Knife and shears..... J. N. Ritchie
 Shears..... P. Broadbooks
 Shipping and show case. Combination..... W. W. McKee
 Shocking machine..... T. A. Wooley et al
 Shoe..... J. G. Marchand
 Sieve. Self-cleaning..... M. W. Hunt
 Sink supporting frame. Kitchen..... E. H. Jaquith
 Skirt or coat gage..... J. B. Wells
 Smelting brick and making same. Smelted ore
 J. Furukawa
 Smelting ore..... R. Baggaley
 Smoke bell hanger..... C. J. Woodward
 Smoke consuming apparatus for locomotive
 boilers..... S. F. Pierce
 Soap pulverizing machine..... R. H. L. Talcott
 Speed varying mechanism..... M. O. Reeves
 Spike extractor..... G. F. Pearson
 Spike puller..... H. Q. Hood
 Spindle bobbin clutching means. Rotatable..... G. O. Draper
 Spindle bobbin retaining means. Rotatable..... A. D. Morse
 Spoon. Medicine..... M. L. Beistle
 Stage apparatus..... N. Burgess
 Stamp. Printing..... L. M. Todd
 Stamping device..... I. N. Stewart
 Stave heating and drying apparatus..... O. L. Ellis
 Steam boiler..... J. C. Schneider
 Steam boiler..... G. H. Blowers
 Steam boiler. Multitubular..... J. F. Liebenritt
 Steam meter..... E. Kuhnke
 Steering wheel..... P. L. Hussey
 Stencil cutting machine..... S. D. Hartog
 Stock washer..... G. R. Sherwood
 Stove. Reversible..... F. De Rangis
 Street watering cart..... C. W. Collyer
 Surgical needle..... T. C. Edwards
 Swath turner..... E. C. Blackstone et al
 Switch..... A. E. Willey
 Switch points or tongues. Holding device for..... C. C. Korns
 Table..... 2 pats..... C. King
 Tank heating device. Storage..... S. F. Bowser
 Tank support..... P. P. Sturdevant
 Telegraphic transmitter..... M. Armstrong
 Telephone call..... P. T. Geyerman
 Telephone locking device. Coin operated..... W. Calhoun
 Telephone operator's key..... L. W. Wanmaker
 Telephone signaling means..... K. Weman
 Telescope, binocular, &c. Prismatic..... J. Aitchison
 Telescope. Panorama..... C. P. Goetz
 Theater seat attachment..... J. A. Olson et al
 Thill coupling..... E. J. S. Davis
 Thread drying frame..... J. Knott Sr
 Threshing machine..... V. C. Bailey
 Ticket holder. Dairyman's..... H. G. Clover
 Tinning machine..... D. D. Clarke
 Tire. Pneumatic..... T. Glara
 Tool..... W. L. Carson
 Tool. Combination..... A. Haag
 Tool. Combination..... J. R. Morris
 Tool handle. Detachable..... W. Ashert
 Tool heating apparatus..... J. Pirie
 Tool. Percussive hand..... H. Potter
 Toy..... F. F. Reiser
 Tracer. Duplicating defect..... E. M. Schantz
 Train signaling equipment. Electric..... W. R. Lane
 Trainograph..... W. A. Inwood
 Tramway. Cable..... C. Messick, Jr
 Trap..... A. L. Enqua
 Tree protecting device..... A. Karlson
 Trolley..... M. O. Day
 Trolley catcher and retriever..... W. W. Hoffman et al
 Trolley Electrical..... S. R. Stoddard
 Trolley guide..... J. F. Jameson
 Trolley wheel guard for electric wires..... J. L. Sullivan
 Trousers leg support..... F. A. E. Wenzel et al
 Truck..... G. Hutton
 Truck and support. Combined wheel..... H. K. & J. J. Dimmick
 Truck Car..... E. Cliff
 Tube cleaner..... J. J. Price
 Tube sheet..... J. J. Boyce et al
 Tunnels. Constructing subaqueous..... T. K. Thomson
 Turbine Elastic fluid..... W. B. Potter
 Turbine engine..... E. H. Ludeman
 Turbine. Fluid pressure..... H. F. Fullagar
 Turbine. Steam..... C. W. Dake et al
 Turbines. Water lubricating system for steam
 A. H. Kruesi
 Twisting machine..... H. & J. W. Collins
 Twisting machine starting or stopping device..... H. & J. W. Collins
 Type writer and telegraph transmitter. Com-
 bined..... C. H. Hepinstall
 Type writer classifying sheet holder..... H. C. Hartley
 Type writers, &c. Carriage return mechanism
 for..... L. Myers
 Umbrella. Folding..... C. P. Funk
 Umbrella. Folding..... F. A. Lundquist
 Umbrella. Folding..... D. W. Mabey
 Valve. Gasoline engine feed..... C. Pederson et al
 Valve. Pressure regulating..... J. H. Bleoo
 Valves to their spindles. Means for securing..... C. Ely
 Vegetable cutter..... W. Wildermuth
 Vehicle steering gear..... T. M. George
 Vehicle wheel..... H. H. Taylor
 Velocipede..... E. Bentley
 Vending machine..... A. Conway
 Ventilating apparatus. Building..... W. N. Reynolds
 Vessel for carrying ore or like material..... F. K. Hoover et al
 Vial necking and lipping machine..... W. Little
 Vibrator regulator..... C. F. Spiltdorf
 Vine cutter..... R. M. Varnedoe
 Vise..... C. J. Lindgren
 Vise. Foot..... J. W. Ford
 Walls. Constructing water tight masonry..... C. M. Crawford
 Walls. Water tight joint for masonry..... C. M. Crawford
 Washing machine..... D. B. D. & W. F. Blake
 Washing machine..... G. A. Wolter
 Watch memoranda attachment..... W. W. Wikoff
 Water closet flushing tank. Automatic..... H. H. & J. G. Fleck
 Water heater..... W. S. Roath
 Weaner. Calf..... F. M. Burge
 Weaner. Calf..... E. P. Jr., & H. Van Alstyne
 Weighing scoop..... J. F. Taylor
 Well drilling mechanism..... J. C. Knupp et al
 Wheel..... G. W. Morse et al
 Wheels, shafts, and cranks. Fastening for..... J. V. Pugh
 Winding form..... J. W. Lundskog
 Window..... R. W. Ennis
 Window construction..... E. T. Robinson
 Wire covering machine..... G. T. Nicholls
 Wire fabric..... B. Scarles
 Wire shipping device. Barbed..... C. B. Kimball
 Wire stretcher..... W. H. Spiller
 Wood fiber cutting machine..... H. M. Leonard
 Wrench..... J. Offermann
- DESIGNS.
 Basin. Lavatory..... W. H. Lloyd
 Fabric. Printing textile..... 5 pats..... E. R. Vandergaw
 Spoon, fork, or similar article..... W. H. Rogers
- Issued March 21, 1905.
- MECHANICAL PATENTS.
 Adjustable rack and shelf support..... T. H. Thompson
 Adjustable table..... G. W. Barnett
 Age and number indicator..... R. Wilson
 Aigret. Artificial..... R. L. McLaughlin
 Aigrets. Manufacturing artificial..... R. L. McLaughlin
 Air brake..... H. Minnick
 Air brake coupling..... J. J. Grigsby
 Air brakes in derailments. Means for auto-
 matically applying..... E. S. Coffman
 Amalgamator..... P. McEntee
 Annunciator..... A. T. & W. L. Ingram
 Apparel. Wearing..... C. Schneider
 Arch..... D. B. Lutten
 Awning frame..... J. R. Powell
 Axle journal. Auxiliary..... G. Newland
 Axle spindle lubricator..... W. Vandenberg
 Axle. Vehicle..... P. L. Sauer
 Azo compound and making same..... E. A. Fourneaux
 Baling press..... J. J. Stoppel
 Ballast handling device..... N. P. Walters
 Balls. Manufacture of playing..... A. T. Saunders
 Band cutter..... J. S. Manly
 Barrel..... L. Love
 Barrel head. Removable..... A. Jaeger
 Basting device..... H. McPhail
 Bath apparatus. Shower..... J. Simpson, Jr
 Battery gas separator. Storage..... T. A. Edison
 Bearing..... 2 pats..... C. H. Chapman
 Bearing axle..... F. L. Weiss
 Bearing ball retainer. Ball..... C. H. Chapman
 Bearing retainer and spacer. Ball..... C. H. Chapman
 Bearing roller..... M. O. Reeves
 Bed. Folding..... G. Karggs
 Bed. Outdoor..... J. H. Hebenner
 Bedstead. Folding..... H. A. Linderth
 Belt. Driving..... T. J. Kean
 Berth support. Ship's..... G. Vigie
 Bicycles, &c. Speed timing attachment for..... A. L. McMurtry
 Binder..... I. R. Barrett
 Binder for books, music, &c. Perpetual or
 temporary..... R. H. Collins
 Binder. Loose leaf..... J. F. Cordes
 Binder. Temporary..... M. O. Bong
 Blider. Temporary..... F. A. Trussell
 Blasting compound..... F. G. Dokkenwadel
- Binders. Swath gatherer attachment for..... E. M. Norris
 Blast or other furnace. Water jacketed..... A. Patterson
 Block system. Electromagnetic..... G. Thompson
 Boarding clamp..... H. S. Holcombe
 Body stretcher..... W. W. Seidler
 Boiler scale remover..... T. S. Bly
 Bolt clipper and shears. Combined..... F. A. Roberts
 Book mark..... G. W. Hill
 Bottle..... R. E. Core
 Bottle..... N. E. Booth
 Bottle for preventing the fraudulent refilling of
 same..... M. R. Green
 Bottle. Hot water..... A. J. Scritchfield
 Bottle non refillable attachment..... C. Bell
 Bottle stopper..... E. Hoerichs
 Bottle stopper. Valved..... F. G. Kammerer
 Box..... F. H. Houghland
 Brake mechanism..... R. M. Downie
 Brake shoe..... 2 pats..... J. D. Gallagher
 Brake switch locking device..... F. C. Newell
 Branding iron..... H. W. Brent et al
 Bridge. Cantaliver suspension..... J. Tomlinson
 Bridle bit..... T. Milligan
 Brush..... P. A. Sarchinger
 Brush bridle..... G. R. Winnie
 Brush. Collapsible..... W. A. Weir
 Bucket sinker. Wall..... H. C. Hopkins
 Building block..... E. E. Benner
 Burner..... W. W. Smethurst
 Butter cutting machine 2 pats..... C. F. Hefflinger
 Button..... F. J. Lowery
 Button. Memorandum..... C. T. Whitsett
 Buttonhole clamp..... E. B. Allen
 Buttonhole working attachment..... O. E. Hammond
 Cabinet. Pie..... G. Conez
 Cable box..... F. B. Hall
 Cake mixer..... F. R. Schmidt
 Calculator. Mechanical..... J. R. Hamilton
 Camera. Photographic..... J. E. Thornton
 Can body manufacturing machine. Sheet metal
 M. A. Wheaton
 Can body manufacturing machine. Sheet
 metal..... M. A. Wheaton
 Canopy support..... H. Raines et al
 Car body bolster. Railway..... H. C. Williamson et al
 Car brake..... H. Poth
 Car brake appliance..... D. Taggart
 Car coupling..... I. I. Caskey
 Car coupling..... T. A. Savage
 Car coupling. Automatic..... S. P. Bush et al
 Car gate. Railway..... C. M. Waite
 Car. Railway..... J. W. King
 Car seat..... H. S. Hale
 Car wheel. Self oiling..... E. T. Thayer
 Carbureter for hydrocarbon engines..... A. A. F. & G. Longuemare
 Carton closing and sealing machine..... W. H. Doble
 Carving machine..... H. Luschar
 Cash register..... 2 pats..... F. W. Steinacker et al
 Casket inclosing case..... J. D. Ripson
 Caster..... W. C. Fischer
 Casting hollow cylinders. Core for..... H. Brauns
 Cement block molding machine. Hollow..... H. A. Robbins
 Ceramic or vitrified ware. Decorated article
 of..... J. R. Anderson
 Check protector..... G. W. Beebe
 Checkrein ease. Combination..... J. R. Uncapher
 Cheese cutter..... D. J. Bushor
 Chuck..... O. M. Mowat
 Chuck. Revolving or three way..... I. B. Gilbert
 Churn dasher..... S. B. Rathbun
 Cigar cutter and match deliverer..... O. Jaeger
 Cigar holder and ash receptacle..... J. G. Poppert
 Cigar rolling machine..... A. F. Wallbillich
 Cleat. Wiring..... J. M. Latimer
 Clothes line holder..... J. F. Michel
 Clutch..... N. D. Chard et al
 Clutch..... J. S. Ebert
 Coat and hat hanger..... W. Glenn et al
 Cock. Gas..... G. Creter
 Coffee cartridge..... G. Brown
 Coffee dripper..... G. Brown
 Coffin..... J. M. Stafford
 Coil. Self restoring heat..... F. B. Cook
 Coin delivering device..... M. G. Froberg
 Collar rolling machine. Horse..... F. E. Goodman
 Column, pedestal, or similar decorative archi-
 tectural structure..... E. A. Munns
 Comb..... W. J. Metcalf
 Compensating device..... H. Meyer
 Concrete structures. Making..... C. R. Gow et al
 Condenser. Steam..... 2 pats..... A. H. Helander
 Condensing apparatus..... A. Shiels et al
 Confectionary coating machine..... C. Poyet et al
 Controller bit..... C. W. Phillips
 Conveyor. Extension..... D. D. Plunkett
 Corn shredder band cutter and feeder..... C. G. Bort
 Corset. Apparel..... D. Kops
 Corset fastening..... H. W. Thurlow
 Cotton compressor..... A. T. Snodgrass
 Couplings. Device for supporting pivot pins
 in..... C. A. Tower
 Cultivator cotton chopping attachment..... M. A. Jones
 Cultivator planter attachment..... W. H. Mitchell
 Current regulator. Alternating..... E. L. Haney
 Currents. System for the rectification of al-
 ternating..... C. F. Burgess
 Currycomb..... J. K. Brown
 Curtain hanger..... A. La Rue
 Dental chair..... A. P. Gould
 Dental jaw brace..... C. A. Thomson
 Dental matrix retainer..... C. M. Leffingwell
 Derrick..... J. L. Parsons
 Detonator or auxiliary protective alarm spark
 gap for high frequency apparatus..... H. Jackson
 Display bin..... H. G. Roth
 Display holder..... O. A. DeLong
 Display rack..... R. E. Cannon
 Display rack..... O. H. Muehler
 Distributing bell..... J. B. Ladd et al
 Door and window fly escape screen..... J. S. Johnson
 Draft rigging..... 2 pats..... E. W. Hartouch
 Draft rigging..... H. C. Williamson et al
 Drilling machine..... R. M. Downie
 Dust collector..... G. Simpson et al
 Dye and making same. Orange sulphur..... A. L. Laska
 Dye. Green anthraquinone..... R. E. Schmidt
 Dye Green blue anthraquinone..... R. E. Schmidt

- Dye. Greenish blue anthraquinone. R. E. Schmidt
Dyeing apparatus. D. F. Waters
Dyeing machine. Warp. T. E. Davis
Earth enriching. T. C. Jeffries
Egg beater. G. M. Munn
Electric circuits. Bridging circuits for. G. Thompson
Electric currents. Partial circuits for. G. Thompson
Electric furnace. W. C. Arsem
Electric generator. W. Kaisling
Electric switch. D. E. Gray
Electrical switch. R. G. Clark
Electrode. Vacuum. R. Machlett
Elevator shaft gate. W. H. Paeth et al
Ellipse, oval, or circle cutting machine. R. Carlton
Embroidering machine. Jacquard. L. Herzog
Engine. E. F. Linde
Engine. C. E. Hastings
Engine fuel injector. Oil. N. L. & W. W. Tuck
Engine speed regulator. Explosive. A. M. Milson
Engine vaporizer and igniter. Oil. N. L. & W. W. Tuck
Evaporating apparatus. Vacuum. T. Suzuki
Excavating and dredging machine. W. F. Laid
Explosive engine. W. C. & M. W. Risbringer
Eyeglass mounting. 3 pats. I. Fox
Eyeglasses. B. M. Levey
Eyelet. H. W. Laiden
Fabric and making same. Coated or impregnated. T. E. Kinney
Fabrics. Metalizing. C. Danilevsky et al
Fan. W. G. G. Weidinger
Feed gage. E. L. McGill
Fence post. W. G. Lieser
Fence post. A. O. Reams
Fence post. E. E. Gardner
Fender. R. D'Oronzio
Fertilizer distributor. A. J. Allen
Fibrous stock. Retting. J. E. Lappen
File holder. C. Armijo
Fire and burglar alarm. Reissue. I. S. Buhrer
Fire box boiler. J. S. Glenn et al
Fire cock combined with the pipe. H. Aass et al
Fire escape. J. Fuger
Fire escape brake. L. Dahlquist
Fire extinguisher. T. F. Hardy
Fire extinguisher sprinkler head. Automatic. A. D. Linn et al
Firearm. Automatic. B. Burton
Fireplace heater. G. W. Buck
Fireproof building construction. J. Schirra
Fish box. Live. C. B. Tourville
Fish trap. A. J. Broome
Fluid motor. H. E. Weiner
Flush tank. A. W. Oberlies
Flushing apparatus. Automatic. M. J. Quinn
Flushing apparatus for closets. Noiseless. L. F. De May
Flushing gate for sewers, &c. G. S. Walker
Fork attachment. H. M. Karsten
Foundry appliances. Composition of matter for. A. R. Marsteller
Frogless switch. A. Falkner
Fruit picker. I. Carman
Furnace conveying mechanism. W. McClave
Fuse box. Electrical. G. W. Goodridge
Fuse, percussion. D. J. Cartwright
Gage tool. Combination. E. Wiet
Game registering mechanism. Tenpin. A. Ferland
Games. Sling mechanism for tenpin. A. Ferland
Gas furnace retort setting. G. H. Niles
Gasket or packing ring and apron therefor. E. L. Perry
Gate. J. W. Strait
Gear for elevating machinery, &c. Driving. G. E. Holland et al
Girders, angle irons, &c. Machine for cutting or punching. A. J. Ward et al
Glass annealing leer. Plate. M. M. Maher
Glass articles. Producing hollow P. T. Sievert
Globe. Reissue. S. O. Richardson, Jr
Glove. H. Urwick
Governor. F. I. Joyce
Governor. Engine. W. N. Springer
Governor. Mechanical speed. N. W. Akimoff
Governor. Variable speed. W. N. Springer
Grain, &c. Apparatus for conditioning. R. Horner
Grain binder. P. Hanson
Grain separating. S. J. Mason
Grain separator. E. M. Kramer
Gramophone record. H. S. Berliner
Grinding machine. A. B. Landis
Grinding machine. W. M. Craig
Grinding mill quick release mechanism. W. A. Farrar
Grinding mill. Roller. A. J. Ford
Gromet setting machine. W. H. Wagner
Gun sight. Naval. V. J. Poulet
Hammer. Pneumatic. R. A. Norling
Handle for demijohns, &c. W. E. Brown
Harness tail holding attachment. F. R. Warwick
Harness terret ring. M. Bresnahan et al
Harrow. Sulky disk. H. S. Howard
Harrows, &c. Cleaning attachment for disk. M. H. Daley
Harvester reel. C. O. Wyman
Hay carrier. W. F. Jacobs
Hay press. C. E. Wehrenberg
Hay sling. W. A. Badger
Heating and evaporating apparatus. R. W. Emerson
Heating or low pressure system. Exhaust. R. B. Brown
Heating system. Steam. L. S. Burbank
Hinge. 2 pats. R. G. Winter
Hoist or coal whip. Electrically driven. J. Wilhelm
Hoisting apparatus. J. C. Stocum
Hook and eye. H. H. Eaton
Hook or hanger. M. Robin
Horseshoe. J. W. Fisher
Horseshoe. Rubber. A. Sandfield
Hose reel. E. Dice
Hose supporter. A. H. Cohn
Hydrant. R. L. Pollock
Hydromobile. C. A. Manker
Identification tag. E. J. Brandt
Index. C. M. Cott
Ingots in conical molds. Press for compressing and drawing. H. Harmet
Injector. Steam. W. B. Culver
Insulation from wires. Tool for removing. J. E. Williams
Insulated step joint. B. G. Braine
Internal combustion engine. F. A. Haselwander
Internal combustion engine. E. A. Rutenber
Internal combustion engine. N. L. & W. W. Tuck
Jar or bottle closure. W. H. Jones
Keyboard. C. H. Cochrane
Kinetoscope film holder. A. E. Smith
Kinetoscope flame shield. W. Ellwood
Label affixer. Automatic. B. R. McIntyre
Ladder. Platform. D. A. Sox
Ladder. Step. H. H. Case
Ladder. Step. A. A. Smith
Lamp. Electric arc. C. Oliver
Lamp holder. Incandescent. J. Feighner
Lamp. Night. R. P. Gibbs
Lamp. Portable electric. H. D. Oiler, Jr
Lamp. Signal. F. K. Wright
Lamp socket. Electric. J. A. Mebane
Lamp supporting and attaching device. C. Johnson
Lamp. Vacuum. J. M. Davey
Lathe work centering attachment. J. M. Brown
Leather polishing roll. W. H. Gerrity
Level. A. V. Shotts
Life saving appliance. G. Krieger
Lifting jack. G. C. Wimpee
Lifting jack. M. Riddle
Lined pipe. P. Mommeritz
Linotype machine. F. C. L. D'Aix
Linotype or line casting machines. Matrix for. F. C. L. D'Aix
Liquid fuel burner. W. F. Richey et al
Liquid raising apparatus. G. Hantke
Liquid raising apparatus. O. H. Stakemann
Loading or unloading apparatus. J. D. Buchanan
Lock. F. J. Vieweg
Lock and latch. B. Phelps
Loom for weaving narrow fabrics. C. H. Maxsted
Loom. Jacquard. C. Novet
Loom shuttle guide. F. Heintze
Loom. Terry. J. H. Crowley
Loom warp beam. A. J. Thornley
Lubricator. J. Trotter
Lubricator. C. G. Glasrud
Magnetic spheres of influence. Means for progressively establishing and dissolving. G. Thompson et al
Magnetic spheres of influence. Means for progressively establishing and dissolving. G. Thompson
Mail bag delivery apparatus. N. J. Curtis
Mail box. Trolley. W. Hills
Manure spreader. J. S. Patch
Massage steamer. J. P. Weis
Match holder. Pocket safety. J. Karpen
Match making machine. F. Czerweny
Measuring tank. Automatic. F. N. Lowry
Meat block and bench scraper. G. E. Kent
Medicinal or other purposes. Machinery for manufacture of tablets for. J. F. Buckley
Metals from their ores. Apparatus for extracting. W. A. Hendryx
Mining dredge. A. G. Macdonell
Mixing device. N. C. Burnham
Moistening and sealing envelopes. Means for. G. H. Swezey
Mold. F. M. Sawyer
Molding machine. J. Lund
Molding press. G. J. Otto
Mothproof bag. G. M. D. Manahan
Motor. C. O. Deutschmann
Motors. Two speed winding for three phase. U. E. F. Alexanderson
Mowing machine vine cutting attachment. J. G. King
Musical instrument. Mechanical. 2 pats. P. Wuest, Jr
Nail plater. W. H. Warram et al
Nitrogen compounds. Making. A. Frack et al
Noise deadening means. C. P. Wood
Nut lock. C. R. Thompson
Nut threading machine. N. B. Wood
Oil engine. A. Krebs
Oil press pan. P. O'Brien
Oiler. J. C. Hayward
Ore agitator and filter. V. A. Robinson
Ore concentrator. C. G. Weller
Ores. Separating and refining complex. E. Hedburg
Overalls. G. Bucking VIII
Overshoe. H. O'Sullivan
Package. Shipping. J. A. Bower
Packaging machine. C. H. & A. Day
Packing. C. G. Holmberg
Packing. Piston rod. W. P. Chrysler
Paddle wheel. J. Best
Pans, kettles, &c. Detachable lid controlling and locking mechanism for. A. Lundqvist
Paper board. Machine for making. T. W. McFarland
Paper roll saturating process and apparatus. L. Busch
Paper straightener. F. L. Reinecker
Paper weight. C. T. Ringo
Pasto substances. Drying. M. Ekenberg
Pavement. Bituminous or other pitch concrete. J. H. Amies
Pavement. Pitch cement concrete. J. H. Amies
Peat compressing machine. C. Schlickeyen
Pen. Fountain. 2 pats. C. W. Boman
Pendulum regulator. A. M. Lane
Persorating machine gage. C. S. Perkins
Perimeter. H. L. Sayen
Phase indicator. P. G. Watmough, Jr
Phonograph records. Mold for duplicate. W. H. Miller et al
Photographic apparatus. Automatic. E. H. Matthey et al
Photographic emulsion and making same. Colorsensitive. K. Kieser
Piano repeating action. Grand. A. Nickel
Pick finder mechanism. E. H. Ryon
Pigments. Producing black or dark carbonaceous. D. J. Ogilvy
Piling. Metallic. M. Schlessner
Piling. Wooden sheet. H. Wittekind
Pin. S. Dancyger
Pipe bedding apparatus. 2 pats. L. H. Brinkman
Pipe coupling. Z. B. Custer
Pipe fitting. W. Vanderman
Pipe hanger. C. W. Hodgdon
Pipe thimble. C. A. Dunbar
Pipe wrench. Internal. E. Freytag
Plastic compound. G. B. Dunbar
Plow. D. G. Burkhardt
Plow and cultivator. T. Henderson
Plow and harrow. Combined. E. M. & J. E. Kramer
Plow stock. G. W. Whitehurst
Plunger. Press mold. C. H. Slattery
Pneumatic carrier. T. Bennis
Pocket. Safety. W. C. Trussell
Pole attachment. Vehicle stiff. F. L. Meckel
Polish rod fastener. C. L. Kennedy et al
Power operated switch. J. M. Andersen
Pressing machine. Hydraulic. W. H. Fisher
Pressure gage. C. E. Sargent
Printing frame. E. R. Petrie
Printing frame. E. R. Petrie
Printing frame. Roller. G. C. Olsen
Printing on eggs. Machine for. E. Chirac
Printing plates. Machine for beveling the edges of electrotype or stereotype. F. W. Cann
Programs for use in theaters, &c. Clip for holding. J. Ogilvie et al
Propeller. E. G. Meinecke
Pruning implement. J. M. King
Pul comb. Adjustable pompadour. B. W. Doyle
Pulley block. W. Gutenkunst
Pulley. Sheet metal. 2 pats. C. C. Gardner
Pulp article. Hollow. J. H. Rivers
Pump chain and button. J. F. Williamson
Pump. Hand air. G. E. Cordeau
Pump mechanism. Double acting. E. Hoornbeek
Pump. Rotary. N. Yokouchi, K. Abe et al
Pump. Rotary. F. Bruckert
Pumping engine. O. O. Storie
Puzzle or game apparatus. A. Coe
Radiator for motor vehicles. L. H. Brinkman
Rail joint. D. J. Macdonald
Rail joint. C. W. McCoy
Rail tie and fastening. W. G. Willcoxen
Railway ballasting and superstructure raising apparatus. G. H. Cravens
Railway. Electric. T. Mahoney
Railway frog. P. Kyle et al
Railway safety device. F. C. Foster
Railway signal. M. D. Hanlon
Railway signal. P. S. Dorlon
Railway signal. M. D. Hanlon
Railway spike claw bar. H. A. Meikrantz
Railway switch. E. W. Henry
Railway switch. E. G. Clitt et al
Railway switch setting and locking mechanism. J. H. Clark
Razor stop. G. E. Maier
Reciprocating engine. V. R. Method et al
Record. Combination statement and collection. M. M. Cohn
Records and blanks. Apparatus for producing molded. W. H. Miller et al
Recording gage. C. J. Manning
Refrigerating apparatus. Expansion valve for. A. T. Marshall
Resonator switch. H. C. Moyer
Roasting furnace. C. H. Repath et al
Rope knife. C. R. Phillips
Rotary boiler. H. Brown
Rotary engine. L. Bergman
Rotary engine. R. K. Morrison
Rotary engine. L. A. Cooper
Rubber articles. Manufacture of hard. W. R. Sine
Rule. C. O. Rasmussen
Sawdapping machine drum. J. L. Perry
Sash balance. J. Soss
Sash fastener. Window. R. J. Mason
Saw. P. Thompson
Saw handle. Detachable hand. J. Weiler
Sawmill set works. F. A. Floyd
Saws. Adjustable fence for. T. Bemis
Saws. Device applied to circular. A. I. less
Scaffold. Outside hanging. T. J. Campbell
Scale. Automatic beam. G. Hamilton
Seal lock. W. T. Percival
Seal lock. J. J. Russell
Seal lock for pipe couplings. R. D. Simpson
Sealing rings with wax. Machine for coating. G. D. C. Coddington
Seaming machine. Double. O. S. Beyer
Self closing gate. C. W. Hess et al
Sewage handling and septic matter clarifying apparatus. F. P. Smith
Sewing machine needle plate and support. W. H. Stedman
Sewing machine. Revolving hook. M. Hemleb
Shade and curtain supporting bracket. W. P. Gurr
Shaft Spring. J. Nadrowski
Shaft supporter. Wagon. F. E. Wahlgren
Sheep shearing machine. W. Silver
Sheet holder. Loose. E. A. Trussell
Sheet metal box. L. Steiner
Shoe form. W. L. C. Niles
Shoulder brace and suspender. Combined. F. C. Hunt
Shrapnel. A. Wratzke
Sifter. Flour. W. G. Gadue
Skate. Tubular. W. G. Nott
Slate, stone, metal, wood, &c. Apparatus for cutting or sawing. C. Landale
Sleeve expander. A. Kaufmann
Small arms. Self-loading. J. T. S. Schouboe
Smokeless combustion furnace. C. Wegener
Snap hook. D. E. Barton
Snow plow. C. Dietrich
Snow plow. C. Freeman
Soap reservoir. Liquid. A. L. Fribourg
Socket Slip. D. K. Johnston
Soldering apparatus. Can. O. S. Fellows et al
Sound record. G. A. Manwaring et al
Sound records. Production of. G. A. Manwaring et al
Souvenir device. J. J. Ernise
Spectacle frame. R. H. Simonds
Spinning mule attachment. J. & L. H. Bond
Spring. F. P. D'Arcy
Stacker. Force feed. P. Brouk
Stacker. Force feed. R. C. Redpath
Stacker. Straw. T. D. Ulrich
Stall for cattle. Sanitary. M. Walker et al
Stump. Hand. B. B. Hill
Starch material. J. Kantorowicz
Steam engine. Compound. H. H. Pilcher
Steamer. Grain. P. Provost
Sterilizer. H. N. Fowler
Still. Turpentine. J. Bannor
Stone crusher. G. S. Knapp
Stone mold. Artificial. W. C. Fox
Storehouse for grain or the like. R. C. Roach
Stump roots. Burning. W. Keywood et al
Sugar from masse culte. Recovering. W. Huch
Sulky draw brace. H. D. Keeler

DESIGNS

Fabric. Printed textile. E. B. Vandergaw
Spoons, forks, or similar articles. Handle for. E. Todd, Jr
Stove. Gas. S. C. Gray
Type. Font of. C. W. Smith

Issued March 28, 1905.

MECHANICAL PATENTS.

Advertising coloring materials, paints, &c. Method of and device for. J. F. Gould
Advertising device. L. A. Farnsworth et al
Aeroplane. A. P. Criswell
Aeroplane covering. I. Lancaster
Air and gas motor. Compressed. M. E. Clark
Air brake control. F. B. Corey
Air brake system. Automatic. F. B. Corey
Air compressor. Hydraulic. C. R. Jones
Air separator. C. H. Lane
Alimentary composition. B. Gollwitzer
Aluminium or other metals. Extracting. H. S. Blackmore
Amusement apparatus. S. Miyata
Animal colics or gripes. Apparatus for treating. A. Heppar

Animal dipping apparatus..... E. W. Bennett
Antiseptic mats. Manufacture of sanitary..... J. P. Sutor
Armatures. Commutating device for alternating current machine..... M. Deri
Awl. Sewing..... M. R. Botkin
Awning and frame Folding..... J. A. Pollock
Axle skein..... G. U. Rounds
Bag fastener..... A. F. Fuller
Bale tie..... E. L. Pence
Ball. Appliance for playing table foot..... M. Gillett
Bandage dressings. Preparing..... M. Cohn
Bar fixture..... C. C. Finch
Bath brush and connection. Spray..... A. W. Nicholis
Bathing apparatus..... C. H. C. Jordan
Bearing Roller..... W. C. Fowkes, Jr.
Bedstead construction..... A. Taylor
Belt stud tool..... J. Stocker
Binder frame..... W. J. Waters
Binder. Loose leaf..... P. Montgomery
Binder. Temporary..... F. L. Nold
Blotter..... A. N. Sill
Blower..... H. E. Parson
Bobbin carrier..... G. Dingendahl
Boiler flue scraper..... W. G. Bolus
Boiler tube tightening device..... F. J. E. Johansson
Boiler tubes. Tubes for operating upon..... J. L. Smith
Book. Scrap..... A. M. Pettengill
Boron by electrolysis. Production of..... J. A. Lyons et al
Bottle..... R. J. Modespacher
Bottle corks or like stoppers. Means for securing..... J. J. Chavasse
Bottle or the like receptacle. Milk..... F. Hammond
Branding iron. Self heating..... H. G. Parker et al
Brick or tile cutting machine..... C. R. Coddington
Bricks from coal or coke refuse. Manufacturing..... J. Hammerslag et al
Broom handle attachment..... L. Shaffner
Brooms into bundles. Device for assembling..... A. P. Longdon
Buckle. Suspender..... M. L. Rothschild
Buggy too brace..... 2 pats. P. W. & D. D. Mover
Building block..... J. F. Dunham
Burner..... H. K. Hess
Butter cutter..... C. P. Ross
Butter tray..... A. C. Hummer
Button. Collar..... C. B. Sippel
Button link..... A. V. Cassity
Button. Separable..... W. B. Bend
Cabinet..... C. P. Adams
Cake machine..... F. M. Peters
Calculator..... R. N. Cooper
Calendar. Automatic perpetual..... J. Ballantyne
Campaign instrument..... A. H. Gould
Candle holder and extinguisher..... H. Kuhnert
Car..... C. A. Lindstrom et al
Car construction..... W. B. Waggoner
Car coupling..... S. R. Smith
Car door..... O. S. Davis
Car door..... N. F. Arble
Car door fastener. Freight..... A. O. Arnold
Car draft rigging. Continuous..... A. Johnson
Car fender..... C. H. Turner
Car frame..... E. I. Dodds
Car stake pocket..... E. I. Dodds
Car wheel. Metal tired..... A. J. O'Neil et al
Carbureter. Hydrocarbon engine..... R. M. Keating
Carbureter pumping and mixing apparatus..... P. B. Johnson et al
Card holder attachment for umbrellas, &c..... R. E. Cannon
Casing packer shoe..... O. M. Bloom
Cask..... J. Gilmour et al
Casting..... 2 pats. F. Cowden
Catamenial bandage..... E. C. Morison
Cattle guard..... T. K. McQueen
Cattle guard..... G. W. Stegall
Cattle guard..... E. I. Crandell
Centrifugal machine..... G. ter Meer
Centrifugal machine..... K. P. Nilsson
Chain..... R. G. Goldman
Chains and chain cables. Connecting link for..... J. W. Hill
Chimney construction..... W. T. Coughlin
Chimneys or stacks. Constructing..... G. H. Thirk
Churning machine..... O. S. Strickland
Clear bunching machine..... N. Calocoff
Clamp..... F. O. Wood
Clamping device..... A. D. Locke
Clasp..... W. D. Doremus
Clipper. Hair..... W. T. Lees
Clock. Automobile..... 2 pats. W. F. Porter
Clothes pole tip..... T. H. Strehlow
Cloths in vats. Machine for automatically folding..... S. C. Rowe
Clutch..... C. Jacobson
Clutch. Friction..... H. A. Williams
Coffee mill..... T. M. Ribert
Coffin fastener..... F. P. Brining et al
Coil. Self soldering heat..... F. B. Cook
Collapsible box..... C. H. Stonebridge
Combination lock..... E. E. Quaintance
Concrete building block forming machine..... 2 pats. J. F. Dunham
Concrete structure reinforcement..... A. N. Doud
Cooker and hot air oven. Combined steam..... H. S. Robinson
Cord fastener. Metallic..... C. F. Methfessel et al
Cork extractor..... H. H. Dunn
Cot and tent. Combined..... I. L. Gleason
Counting apparatus..... W. P. Watts
Cozy corner seat and bed. Combination..... A. J. Ritchie
Crate..... A. C. Buttman
Curler and crimper. Hair..... A. A. West
Curtain fixture..... C. L. Hopkins
Curtain pole..... E. O. Castner
Date reference device..... J. Andrew
Dental tool..... R. Zentner
Dental trial plates. Waving up tool for A. May Derrick. Portable..... E. Graham
Detonating device. Magazine..... A. E. Merkel
Disolav cabinet or stand..... F. R. Currie
Display rack..... H. Frankenthal
Disolav stand. Jeweler's..... C. F. Domann
Distilling plant. Wood..... C. M. Palmer
Door stop..... H. W. Ross
Dough shaping machine..... V. Loncaric
Draft rigging. Reissue..... A. Linschut
Draft rigging mechanism..... G. H. Forsyth
Drains, vent boxes, washpaves, &c. Cover for..... D. Gailey
Drawing frame sliver evening device.....

..... V. S. Westcott et al
Dredge..... I. G. Gillespie
Drill bit..... E. Moser
Drill scrauer. Disk..... S. E. Davis
Drying apparatus..... W. J. Wells
Dust protector. Telescopic..... A. N. Epstein
Dye and making same. Violet anthracene..... O. Bally
Dyeing machine..... M. Sarfert
Edge protector..... O. Stromborg
Electric cable joint..... D. J. Chisholm
Electric circuit closing apparatus..... R. de Lamprecht
Electric circuit regulating means..... W. S. Moody
Electric conductor support..... J. M. Andersen
Electric protector apparatus..... F. B. Cook
Electric switch with indicator. Double throw..... E. M. Hewlett
Electric time switch..... W. B. Coulter
Electric time switch..... H. C. Little
Electrical circuits. Thermal cut-off for..... F. B. Cook
Electrical control system. Distant..... I. Gomborow
Electrical currents for induction motors. Means for converting..... C. F. Heinkel
Electrode. Electric furnace..... E. F. Price et al
Elevator mechanism..... I. Dillion
Elevators. Combined electric and mechanical signal apparatus for..... W. T. Dulany, Jr.
Engine reversing means. Explosive..... I. D. Termaat et al
Engine sparking igniter. Explosive..... L. D. Kinzig et al
Excavating machine..... J. D. Buchanan
Exhibiting mechanism..... W. H. Jacobs
Extension table..... M. Alberty
Extension table..... T. C. Beach
Fanning mill..... A. Gerth
Farm gate..... J. J. Hiner
Faucet..... J. J. Fitzgibbon et al
Feeder. Boiler..... C. E. Finch
Felt. Apparatus for the manufacture of..... G. W. Morse
Fence post..... R. M. Patterson
Fence. Wire..... W. Clement
Fencing tie. Wire..... N. B. Hayes
Fertilizer distributor..... C. Johnson et al
Fifth wheel..... W. Shaw
Finger ring..... L. Lehr
Fire ball indicator..... H. T. Moody
Firing. Method of..... G. S. Waller
Fish net..... K. Rudiger
Fishing rod..... W. R. Wheeler
Floor oiling apparatus..... J. Rischke
Flour mill. Portable..... C. A. Smith
Fly freighter..... T. J. Merryman
Fruit gatherer..... J. M. Chritton
Fruit grader..... E. N. Maul
Fruit press..... H. Bollweber
Fuel feeder device. Commutated..... I. F. Hay
Fuels. Producing complete combustion of..... J. R. Barrett
Furnace..... G. S. Waller
Furnace..... E. S. Chase
Furnace cooling jacket. Blast..... D. Baker
Furnace lining material..... H. C. Turner
Fuse. Imoact..... K. Wieser
Fuse igniter and discharger. Automatic..... W. M. Jackson
Game apparatus..... P. W. Gee et al
Garment oin..... R. Wiegell
Garment supporter..... J. Morgan
Garment supporter..... I. C. Copeland
Garment supporter for trunks, &c..... E. W. Hawley et al
Gas generator. Acetylene..... L. S. Buffington
Gas. Manufacture of carbon tetrafluoride..... J. A. Lyons et al
Gas pressure governor..... J. V. Mathliet
Gas producer..... W. O. Amisler
Gas producer..... F. W. Johnston
Gas producer..... A. B. Duff
Gas producer grate..... H. F. Smith
Gas producer. Section..... H. F. Smith
Gas producers. Regulating air and steam applied to..... H. F. Smith
Gas. System for the combustion of..... J. A. Herrick
Gate..... J. Anderson
Gate..... P. C. Forrester
Gear wheel. Sectional..... F. G. Ward
Gearing..... M. Hendrickson
Glass. Manufacturing wire..... F. Shuman
Glassware blow mold. Handled..... A. R. Grotz
Glassware handling apparatus..... A. M. Acklin
Glassware. Making handled..... A. R. Grotz
Glassware press mold. Handled..... A. R. Grotz
Glove. Pocketed..... J. W. Cooper
Gold from sand, &c. Machine for separating..... C. O. Michaelson
Grain separator..... P. Fleisher
Gain. System of pipes with furnace for drying sprouted..... C. W. F. Steinmann
Gramophone..... T. Sanders
Gramophone reproducer..... V. H. Emerson
Gramophone reproducer..... T. H. Macdonald
Griddle..... C. E. Hill

(Continued in May Number.)

Canadian Patents

Canadian Patents may now be obtained by the inventors for any of the mechanical inventions named in the foregoing list, provided they are simple, at a cost of \$30 each. If complicated the cost will be a little more. For full instructions address Inventive Age Publishing Co., 918 F Street N. W., Washington, D. C.

Foreign patents may also be obtained in certain other countries.

FREE!

Send us 2 cents to pay for postage and we will mail you a valuable copyrighted book, "How to obtain Patent, Caveat, Trade-Mark and Copyright Protection, with Decisions in Leading Patent Cases" entirely free of charge. Address:

INVENTIVE AGE PUBLISHING COMPANY,
(Dept. P.) WASHINGTON, D. C.

NEW BOOK.

GAS-ENGINES AND PRODUCER-GAS PLANTS.

A Practice Treatise Setting Forth the Principles of Gas-Engines and Producer Design. The Selection and Installation of an Engine, Conditions of Perfect Operation, Producer-Gas Engines and Their Possibilities, the Care of Gas-Engines and Producer-Gas Plants, With a Chapter on Volatile Hydrocarbon and Oil Engines.

By R. E. MATHOT, M. E.

Member of the Societe des Ingenieurs Civils de France, Institution of Mechanical Engineers.

Association des Ingenieurs de l'Ecole des Mines du Hainaut of Brussels.

Translated From Original French Manuscript by
WALDEMAR B. KAEMPFERT.

300 Pages. Bound in Cloth. 175 Illustrations.

Price \$2.50.

A guide for the gas engine designer, user and engineer in the construction, selection, purchase, installation, operation and maintenance of gas engines. More than one book on gas engines has been written, but not one has thus far even encroached on the field covered by this book. Above all Mr. Mathot's work is a practical guide. Recognizing the need of a volume that would assist the gas engine user in understanding thoroughly the motor upon which he depends for power, the author has discussed his subject without the help of any mathematics and without elaborate theoretical explanations. Every part of the gas engine is described in detail, tersely, clearly, with a thorough understanding of the requirements of the mechanic. Helpful suggestions as to the purchase of an engine, its installation, care and operation form a most valuable feature of the work.

The constantly increasing use of gas-engines in the last decade has led to the invention of a great number of types, the operation and care of which necessitate a special practical knowledge that is not exacted by other motors, such as steam-engines.

Each chapter is profusely illustrated with intelligible carefully prepared diagrams that elucidate the explanations of the text. Thoroughly modern in its treatment of the subject, the work discusses at considerable length the generation of producer gas and its utilization in gas engines. No other book presents anything like as full a discussion of this most important phase of the gas engine. Indeed, no other book devotes even a chapter to producer gas, despite the fact that it is the coming fuel for gas engines of higher power.

The author of the work is a consulting engineer who has made gas engines a special study and who has

supervised their installation, in the principal industrial centres of the world. His book treats the subject from the standpoint of the best American and European practice.

THE NORMAN W. HENLEY PUBLISHING CO.
132 NASSAU STREET, NEW YORK, U. S. A.

INVEST

\$1 to \$100 a Month in a Business (27 Years Old) Paying 15 Per Cent.

Very unusual conditions make it possible for us to sell to old and new clients a limited number of shares (at par—\$10 a share) in a high-class business established in 1878.

It is the best known and most profitable business of its kind in the world.

You can buy one or more shares at \$10 a share. You may pay for your stock at the rate of \$1 a share per month.

The minute you get your certificate of stock your money will begin to earn the full 15 per cent. dividends. You will receive your dividend money, amounting to 5 per cent., every four months.

This is the most desirable kind of an investment because, in addition to absolute safety and big dividends, you may sell your stock at any time. We will sell it for you. We feel sure that in a year's time this stock will be selling at a premium of at least 50 per cent. That means that your money would earn, including the dividends, about 65 per cent. the first year. In another year we believe the dividends will be considerably larger, as the business is now being pushed faster than at any time before.

There is nothing speculative about this stock. It is stock in an industrial enterprise of the highest character. The company has

WRITE FOR OUR

FREE PROSPECTUS

prosperity of the company is almost as certain as the continued success of the United States government.

More than half of this block of treasury stock was subscribed for by local capitalists before our first advertisement appeared.

If you want to take advantage of the most remarkable and best investment opportunity offered to the public in many years, write at once (a postal will do) for our interesting free prospectus.

WELLS & CORBIN, Investment Brokers
2132 Land Title Building, Philadelphia



F. C. Owen, President of the most remarkable company of its kind in the world. Answer this advertisement and learn more about him.

PATENTS

Send Your Business Direct to Washington ∴ ∴ ∴ ∴ Saves Time and Insures Better Service.

Caveats,
Trade Marks,
Copyrights
and
Designs.

My office is close to U. S. Patent Office. FREE report as to patentability made. Personal attention given—TWENTY-FOUR YEARS PRACTICE. Book "How to Obtain Patents," etc., sent free. Patents procured through E. G. Siggers receive special notice, without charge, in the—

INVENTIVE AGE

Illustrated Monthly—Seventeenth Year.
Terms, \$1.00 a Year.

E. G. SIGGERS, 918 F STREET, N. W.,
WASHINGTON, D. C.

To Old And New Subscribers Alike.

One Year's Subscription to The INVENTIVE AGE & PATENT INDEX AND WEBSTER'S DICTIONARY (AS DESCRIBED,)

CARRIAGE CHARGES PREPAID,

BOTH FOR \$2.50

LESS THAN HALF THE PRICE OF THE DICTIONARY ALONE

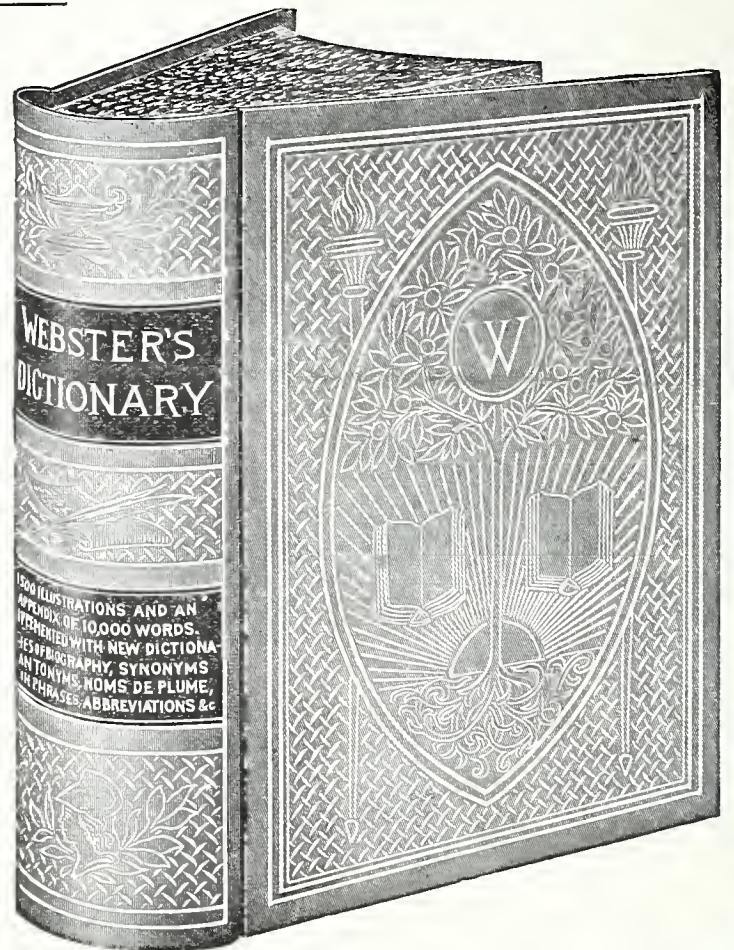
This Dictionary contains every word found in the original Webster's,

IN ADDITION

- | | |
|----------------------------------|---------------------------------|
| (a) An appendix of 10,000 words, | (g) Familiar Allusions, |
| (b) A dictionary of Biography, | (h) Musical Terms, |
| (c) Synonyms and Antonyms, | (i) Heroes of Prose and Poetry, |
| (d) Noms de Plume, | (j) Dictionary of Mythology, |
| (e) Foreign Phrases, | (k) Modern Geographical Names, |
| (f) Abbreviations, | (l) Latin Names, etc., etc. |

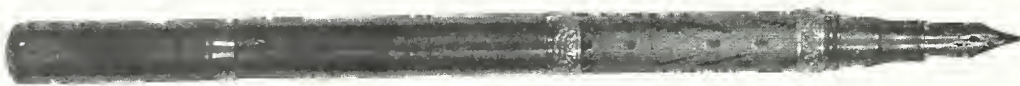
THIS IS A GREAT OPPORTUNITY.

Address: **THE INVENTIVE AGE PUBLISHING CO., WASHINGTON, D. C.**



1540 Pages; 1500 Illustrations; Full Library Sheep Binding; Dennison's Patent Index; Size, 4 x 9 x 10 Inches; Weight eight pounds.

A Remarkable Offer. The "POST" SELF-FILLING AND CLEANING FOUNTAIN PEN.



No Filler. No Soiled Fingers. No Lost Time. Simple and Perfect.

IT IS AWAY AHEAD OF ANY OTHER
PEN MANUFACTURED BECAUSE
OF ITS SELF-FILLING AND SELF-
CLEANING FEATURES.

BEING THE ONLY ONE MANU-
FACTURED HAVING THESE
CONVENIENCES.

We will send this famous pen, postpaid, and one year's subscription to "The Inventive Age," for \$2.00.

Every inventor in the country needs "The Inventive Age," and everyone needs a pen. Here's your chance to get a bargain.

There are many pens on the market, some have been sold for years and are very popular, but we venture to say that all the pens manufactured together have not such a list of recommendations as the "Post" has secured. We have testimonials that a million dollars could not buy. In the list will be found leading men in politics, finance, law, religious movements, literary men, bankers and business men. Men who have never before allowed their names to be used in this way have not hesitated to recommend the "Post" and in terms of praise simply unqualified. Send for list of testimonials.

Pen has gold nib. When ordering state whether a fine, medium or stub point is desired.

Address: **THE INVENTIVE AGE Publishing Co.**
918 F St. Northwest, Washington, D. C.

A New Premium Offer.

WOMAN'S HOME COMPANION.

This magazine is edited and made up in the city of New York, the leading literary and art center of America. It contains the most timely illustrated articles, the most beautiful illustrations, the best short stories, the most popular serial stories, the most practical household departments, the best of everything desirable for a home magazine. It is printed on the finest paper, has 44 to 60 large pages, 11 by 16 inches. The twelve numbers will contain more than one thousand beautiful illustrations. Each month it carries a message of help, profit, pleasure, education, culture and refinement to over two million readers. Its editors and contributors are the most popular American writers. It is altogether the cleanest, brightest, handsomest, choicest and best of the American home magazines.

WOMAN'S HOME COMPANION	One year \$1.00	A total value of \$2.00
INVENTIVE AGE & PATENT INDEX	One year 1.00	

BOTH PAPERS ONE YEAR TO ANY ADDRESS
FOR ONLY **\$1.25**

The above offer applies to new subscriptions only. Send all orders to

THE INVENTIVE AGE PUBLISHING CO.
WASHINGTON, D. C.

ANNIVERSARY
NUMBER

A JOURNAL
OF MANUFACTURING
INDUSTRY

THE Inventive Edge AND PATENT INDEX.

AND SCIENTIFIC PROGRESS.

SEVENTEENTH YEAR.
No. 5.

WASHINGTON, D. C.---MAY, 1905.

SINGLE COPIES 10 CENTS.
ONE DOLLAR A YEAR.

THE WORLD'S RAILWAY CONGRESS.

THE International Railway Congress which has recently closed its sessions in Washington was one of the most notable gatherings that ever assembled in this country. With the single exception of agriculture, it represented the greatest of all the world's capitalized industries. For the benefit of the five hundred foreign delegates, a "white city" was erected on the Washington Monument lot south of the White House, containing a remarkable exhibit of railway appliances made by American manufacturers.

Monument grounds were covered by seventy-one buildings, large and small, containing the machinery of three hundred and seventy-five exhibitors, and representing the highest mechanical development of the modern world of railway transportation. It had two thousand feet of track supporting the latest models of steam engines, freight, passenger, and mail cars. There were exhibits of rails, wheels, tracks, lighting and heating apparatus, brakes, and other appliances innumerable, showing the mechanism of the great lines that have built up the continent.

To this mushroom city, from every quarter of the land, came hundreds of the foremost railway officials and manufacturers of the world. These delegates, foreign and American, were the true advance agents of civilization. Their interchange of ideas will be of mutual benefit, to be materialized wherever the whistle of the locomotive is heard.

"Around the world in seven seconds" is what the agents of the telegraph companies and the naval observatory men announced, as the result of the time signal sent at midnight the first night "announcing to all mankind the first meeting in the Capital of the United States of the International Railway Congress." What the thousands of spectators on the Monument grounds witnessed was electric globe after electric globe, representing two hundred cities in various parts of the world, spring forth in light, showing that the signal had been received at the various points, indicated on the big map. Then there appeared before the spectators a red light and a green light, showing the circuit had been completed.

It was just at midnight that the signal was sent. The Naval Observatory had acceded to the request to send the signal, together with the co-operation of the Western Union Telegraph Company and the Postal Telegraph Com-

pany. A magnificent map had been erected on the exhibition grounds, and the wires of the world connected with it. All was brilliantly lit by electric lights.

When the spectators had gathered to witness the exploit, Rear Admiral Chester explained the system by which the signal was given. Mr. Stuyvesant Fish introduced Secretary of the Navy Morton, who was to close the circuit. The Secretary, with head uncovered, advanced to the table on which the instrument had been arranged by J. W. Collins, chief operator of the Western Union. Commander Hayden asked Mr. Morton to get ready, as but ten seconds of the time to close the circuit remained. Then the commander lifted his hand and Secretary Morton pulled open the white key, closing the circuit. This was at 11:55, and instantly there flashed on the map lights telling the

fact, the experts said, that in North America, and across the Pacific in Manila, there was practically instantaneous delivery of the signal. The first flash after each short break marked the thirtieth second, and the first after each five seconds break marked the sixtieth second. Finally after the last and ten second interval, a long flash marked the exact instant of midnight, and this long flash spread quickly over the map exactly, it was said, as actual observation has shown that it is passed along by thousands of operators. Then were displayed the red and green lights, showing the return.

It was stated that the impulse was sent

around the world in both directions, via New York to London, and via San Francisco and Sidney.

Much money was expended in preparing the circuit. For instance, the Postal made up three wires through this country to San Francisco, one through Montreal and two through New York.

The value of the exhibit to the railroad men is inestimable. This was the first time in the history of railroading, that there has been gathered together so many useful and ingenious appliances that are particularly designed to promote safety, comfort and economy in the operation of the transportation business of the country. The show was much larger and more complete than even its promoters had hoped to make it, and while primarily designed to give foreign delegates an opportunity to see and purchase new equipment for



GENERAL VIEW OF THE BUILDINGS.

their systems, it turned out to be as valuable to American railroad men, who are supposed to be familiar with all the contrivances shown.

This was demonstrated by the fact that a party of twenty-eight officials of the Baltimore and Ohio Railroad Company came over from Baltimore, at the direction of Mr. G. L. Potter, third vice president of the company, who was a member of the American section of the congress. The party included the principal division superintendents and division engineers in the employ of the company. They came to Baltimore for a regular conference with the heads of the departments to which they are attached, and found instructions from Mr. Potter to come here and visit the appliance exhibition in order that they might see and study the appliances shown.

The Pennsylvania Railroad Company made arrangements for a visit to the exhibit by a large party of its motive power men. Both of these visits were ordered after the officers had seen the show, and were not contemplated when the officers themselves arrived here. The excellence of the exhibit, and the fact that practically all the great supply houses were represented here, are the causes of the action taken.

The European delegates manifested particular interest in the operative exhibits of the latest types of electric traction systems in the big Westinghouse pavilion which presented an attractive and orderly arrangement, the most remarkable combination of Westinghouse products ever brought together under one roof. The Westinghouse exhibits are all notable for their feature of thorough operative demonstration, and the traction exhibits are remarkable as the first complete operative display of both direct current and alternating current motor and control equipments ever made at an exposition. The Westinghouse alternating current railway system is already in commercial operation in America over the lines of the Indianapolis and Cincinnati Traction Company between Indianapolis and Rushville, Ind., a distance of forty miles, which is soon to be extended to Cincinnati for the inauguration of a fast passenger and freight service between the two cities. Ten other roads now in course of construction will be equipped with a total of 218 motors of an aggregate capacity of 15,435 horse power. The Swedish government recently received the first Westinghouse single-phase locomotive to be sent to Europe, for use in experimental economy tests of alternating current traction as a substitute for steam locomotion.

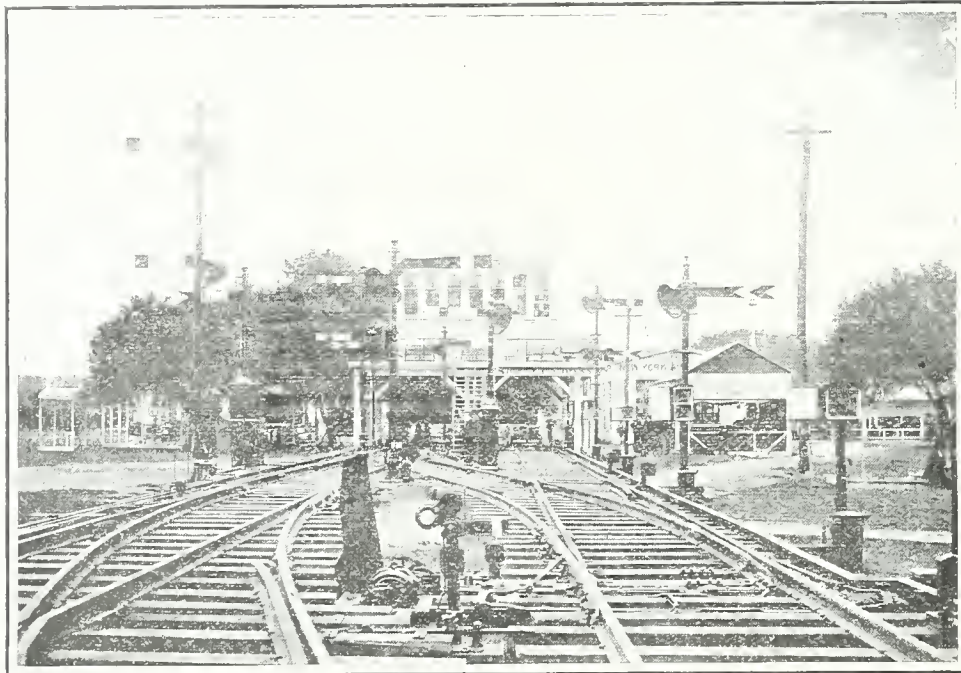
The exhibit of the Philip Carey Manufacturing Company was installed in the attractive and substantial 25x30-foot building in which this company's exhibit was housed at the Louisiana purchase exposition at St. Louis last year. The many combinations of asbestos and magnesia which this company has evolved for boiler and train pipe covering and other similar purposes, and for roofing for freight cars and buildings are worth technical attention. The fiber used is shown in Canadian and Russian asbestos seamed rocks from which the raw material is obtained. The exhibit contained specimens of the best grade of asbestos-magnesia for boiler covering, containing 85 per cent magnesia and 15 per cent asbestos, a combination which is believed to be one of the best of practicable non-conductors of heat. There were also shown samples of asbestos mill board, a combination of asbestos and paper fiber, samples of train pipe covering of asbestos felt, made in layers to prevent breaking or cracking due to train motion; samples of asbestos paper, asbestos twine and asbestos rope packing of many sizes, and a sample theater curtain of asbestos woven wire. An interesting feature of the exhibit was a roof model showing the application of this company's burlap magnesia asphaltum

roofing. To insure perfectly waterproof joints this roofing material has patent laps covering the nails; the laps being cemented down. A demonstration was also made of the use of the burlap roofing for freight cars. The material covers the top of the roofing proper, and forms a complete waterproof protection after receiving an application of paint.

The Standard steel works exhibited steel-tired wheels, forged and rolled steel wheels, steel tires and railway springs, with test specimens and sections to show the character of manufacture. This company received at the Columbian exposition an award for their method of manufacturing tires from ingots, which refers to the use of billets cut from long ingots after the upper aggregated part had been rejected, thus insuring absolutely solid material. This process now has been adopted in preparing blanks from which the forged and rolled steel wheels are made. These wheels are a new and interesting feature in railway equipment. Being made from solid steel blanks of tire steel hardness and high physical qualities, they may be used where cast-iron wheels are not strong enough and where steel-tired wheels are considered too expensive. In the manufacture of the rolled steel wheels the company has utilized its many years of experience in the manufacture and sale of steel-tired wheels, which are made with

roofs of freight cars and locomotive cabs; particular care being taken in its manufacture to produce a material that will resist retortion and strain of cars in motion. The application of this roofing to cars is a part of the exhibit. Another feature of this company's display was a model dump car painted with flexible metal preservative paint. This paint is made in colors and is a linseed oil product made according to the company's own process. The company also displayed its P. & B. mineral paints for water proofing brick walls; P. & B. electrical compounds and P. & B. insulating for electric wires.

The Bradford draft gear, which was exhibited in the main building, contained some new points of arrangement and design. The gear is very simple in its construction and working, consisting of a small number of parts, and these are so arranged as to strengthen the under frame by the method of attachment. For wooden cars, the wooden draft timbers are entirely replaced by the draft gear as furnished, while for steel cars or steel center sill the gear is placed directly between the sills. Ordinarily three springs are used, one being in the usual position between the draft members and one on either side. Instead of follower plates, heavy keys are used, which extend through slots in the draft members or sills, thus engaging all three springs. The out-



DISPLAY OF SIGNALS.

centers either of cast steel, cast iron or wrought iron, and with any desired method of fastening the tire. The company has a new, well-equipped department for making railway springs, and one of the largest forges in the country for making steel and locomotive forgings. Besides these products, about 3,000 tons of iron casting and 1,000 tons of steel castings are produced per month. The works are located at Burnham, Pa.

The Standard Paint Company presented a very attractive reproduction of the Pennsylvania roundhouse at Chicago. This model was eight feet in height and sixteen feet wide, and is intended for the effective display of ruberoid roundhouse roofing manufactured by this company. A particular feature of this roofing is that it is proof against locomotive gases and great heat, a difficulty which is serious when metal roofing is employed, due to corrosion and subsequent leaking. The ruberoid roofing has the advantage that it is less expensive than many other roofing materials. In the application of this material, a watertight roof is insured by the use of tin caps around every nail, the exposed heads being covered with the protected coat with which the roofing material itself is saturated in the course of manufacture.

A somewhat more elastic form of ruberoid roofing is employed for the

side springs are mounted upon short sections of iron tubing, which are slotted to make openings for the keys. When there is considerable space between the sills, a four-spring gear may be used, which gives a high spring resistance. In rounding curves, on account of the shortness of the rigging, it is very flexible, and the outside springs automatically centralize the drawhead.

Among the exhibits was the Keeler eccentric curtain, made by the Federal Manufacturing Company, Elyria, Ohio. The eccentric curtain is absolutely self-aligning and self-adjusting. It has no handles, and no matter at what point you seize the lower edge of the curtain, it slides up and down with certainty and accuracy. The eccentrically pierced rollers play a very important part, as they absolutely hold the curtain at any desired place, and the old trouble of creeping up is entirely avoided. The curtains are now used by the leading roads of the United States, and are giving universal satisfaction.

The exhibit of the Pressed Steel Car Company was excellent, being practically the same as that made at St. Louis last year, for which the company was awarded the grand prize. The exhibit consisted of a box car, flat car, gondola car and mine car, and various specialties, such as Fox truck frames, pressed steel brake

beams, stakes, center plates, etc. The cars are fine specimens in their classes, and embody the very latest designs and appliances brought into use by the builders during the last two or three years.

An interesting tool for cutting and trimming car roofs, doors, sides, etc., was shown by the Aurora Automatic Machinery Company, and consists of a small buzz saw mounted on a light frame, together with an impulse turbine which is driven by air. The whole arrangement is light enough to be handled readily, and the turbine has enough power to cut two-inch stock rapidly, as the saw ordinarily runs at a speed of 8,000 revolutions per minute.

At the general session of the congress conclusions were adopted without discussion on the following topics: Wooden sleepers or crossties, improved rail crossings, locomotives of great power, pooling locomotives, lighting, heating and ventilation of trains, automatic block system, baggage and express parcels, suburban traffic, slow freight rates, duration and regulation of work, influence of light railways on main lines, and the direct financial co-operation by the state and by localities interested in the development of light railways.

Such gatherings as these, and that of the Universal Postal Union, which is really an outgrowth of fast transportation, too, seem to be paving the way for a more perfect union of the peoples of the earth. The coming federation of the world is hastened by the "standardizing" tendencies of the mechanical devices of this present age. They are making all parts of the world very much alike. The interdependence of the nations industrially, following the adoption of "standard sizes," and uniform methods, may be one of the best forerunners of universal peace. Congress and the country have done well to welcome the railroad men of every land to Washington. They will prove one of the exhibits of those interests which are a common possession of the modern world.

New System of Telegraphy.

A new system of quick telegraphy, in which photography plays an important part, has been successfully tried over a 500 mile line in Germany. It is claimed that by the use of this method, telegraphic signs can be transmitted at the rate of 2,000 signs per minute. Only one wire is required for transmitting and receiving messages. The message sent is received in printed characters, and the mechanism is simple. The messages are written on a typewriter which, instead of printing letters, perforates holes in a paper ribbon. This ribbon is then inserted into a transmitter, which sends the perforated dispatch with incredible rapidity to the receiver at its destination. A disk with transparent letters revolves in front of the perforated ribbon at the receiving station, and, by means of a small electric lamp, each perforation or rather letter on which the electric light shines through the perforations, is photographed on a ribbon of sensitive paper. A special paper has been invented for photographing the messages, so that the developing and the fixing of the photographed letters only occupies nine seconds. In case of a lengthy dispatch several typewriters are employed in perforating the messages. It is proposed to set up perforation writers with ordinary typewriter keyboards in various offices, so that messages can be handed in ready for transmission. In dispatching messages through various stations, it is only necessary to use the perforated ribbon received on the fresh transmitter. A great saving of time is thus effected. The only objection that can be raised to the new apparatus is that it transmits messages so rapidly that its use is necessarily confined to central stations, where a superabundance of telegrams are despatched.

CORN PICKER AND HUSKER.

THE LATEST IN HARVESTING MACHINES. THOSE MARVELS OF INVENTIVE GENIUS THAT HAVE ANNIHILATED DRUDGERY AND RAISED FARMING TO THE DIGNITY OF A PROFESSION.

IN the past the work of the farmer was called drudgery. At the present time it is known as an industry, and the indications are that in the future this work will not only be called a profession, but will be one in every sense of the word. In other words, the man who depends upon the soil for a livelihood is realizing that much more money can be made by systematic farming along scientific lines.

the desire of farmers to procure them for immediate use, make it almost impossible to estimate the future sales. All that is necessary to say in regard to the work that these machines will do is that in most conditions of corn, they will pick one row at a time as fast as a horse can walk. On the Deering, two broad faced drive wheels operate two independent sets of drive gears. One gear operates the snapping rolls, while the other drives the husking

rolls and elevator chains. The conveyor chains, picking up rolls and snapping rolls are arranged in their proper places under the divider board. As the machine is drawn towards each hill of corn, the conveyor chains first engage the stalks and force them into the picking-up rolls; from this the stalks are passed to the picker or snapping rolls where each ear of corn is snapped off. The ears are then carried, by means of a conveyor chain, under the right hand snapping roller partly up to the elevator. From this point they are dropped down to the husking roll, from which the husked ears are deposited in the elevator proper and carried up and delivered into the wagon.

The main wheel on the McCormick is high and has a twelve-inch face, which makes it possible for the picker to be operated in soft fields. Beneath the wide divider points, the conveyor chains, which resemble those used on a McCormick corn binder, engage the stalks; while what is known as the picker chain, fitted with a sort of lug or blade, snaps off each ear. The ears are then carried rearwardly to the husking rolls, and from thence through the elevator to the wagon box. Throughout this machine there are numerous convenient devices which aid in making it a practical corn picker and husker. Among the most important might be mentioned the elevator shipper lever operated by the driver. This throws the elevator in and out of gear, and is used when the picker is turning a corner or when an empty wagon is taking the place of one which has been filled. A fly wheel at the rear of the husking rolls assists in producing uniform power and steady motion. In transporting the picker, the elevator can be easily folded, and where it is necessary to remove it, two thumb latches are released, after which the elevator may be instantly detached from the machine.

The construction of these corn pickers is such that where it is desired, the operator can, in a few minutes, change the machine to avoid husking the ears.

After a field has been covered with either one of these pickers, it is to be doubted whether there will be any more corn left on the stalks or on the ground, than if the crop had been gathered by hand.

The AGE is indebted to the *Farmers Voice* of Chicago for the use of the illustrations and descriptive matter.



DEERING CORN PICKER AND HUSKER.

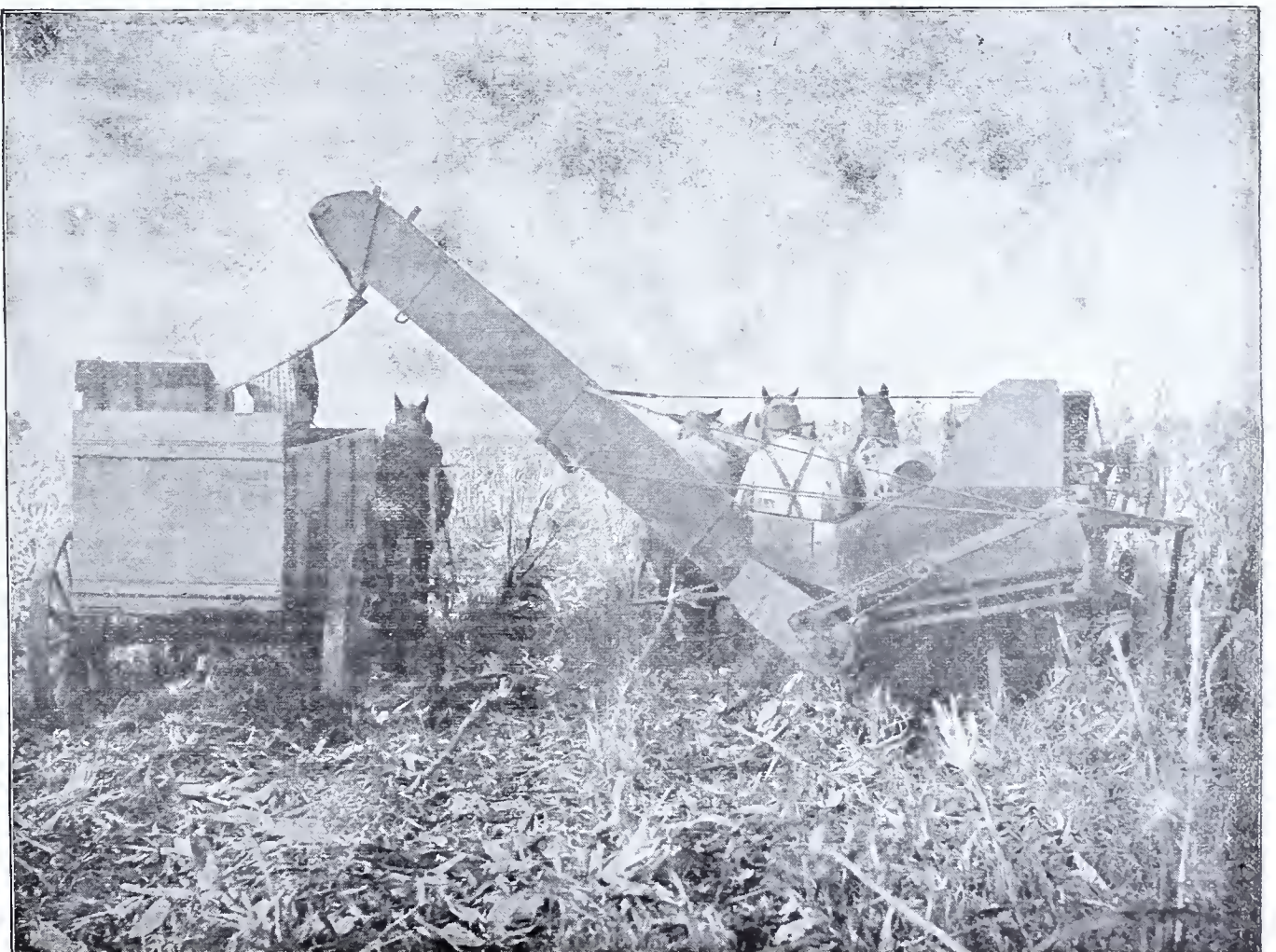
The professional farmer will no longer plow, sow and reap haphazard—trusting in nature to repay him with a bountiful harvest. Instead he will study crop rotation, use care in his seed selection, adopt methods which are encouraged by the United States Department of Agriculture and the state experiment stations, and surround himself with modern mechanical devices, which save time and money in accomplishing results far beyond the expectation of farmers of 50 years ago.

With the advent of the reaper in 1831, agricultural development, which up to that time had been at a stand still, received its greatest impetus; which fanned into life the smoldering spark of genius in the minds of men who have since become famous. These men took up the study of possibilities of the future development of harvesting machines, and inventive competition was launched upon the mechanically inclined. The devices produced by one man aroused ambition on the part of others to evolve something better. Failures there were and successes many, while each was as a torch lighting the way to success.

Such has been the life history of the now perfected harvesting machines, without which it would be impossible for the farmers of the world to produce the food stuff necessary to feed the millions; without which it would be impossible for the farmer to devote time and study with a view to increasing the productiveness of his now fertile soil.

Until recently, the inventors and designers of harvesting machines devoted most of their energy towards developing and perfecting wheat and hay harvesters; leaving corn, the most valuable and one of the most important products of the American soil, to be handled by hand. This naturally created an ever increasing demand for reliable and practical corn machines. The corn binder which cuts the stalks and binds them into large bundles was introduced, experimented with, and perfected. This was the first step toward caring for the corn crop as the small grains are cared for by the harvester and thresher. The successful corn binder was followed by the perfecting of the husker and shredder, with which the farmer makes more available a former waste product.

The accompanying illustrations represent the last and the crowning production of corn harvesting machines—Deering and McCormick corn pickers and huskers. These machines were first placed upon the market during the past season, and the unqualified success of these new harvesters and



MCCORMICK CORN PICKER AND HUSKER.

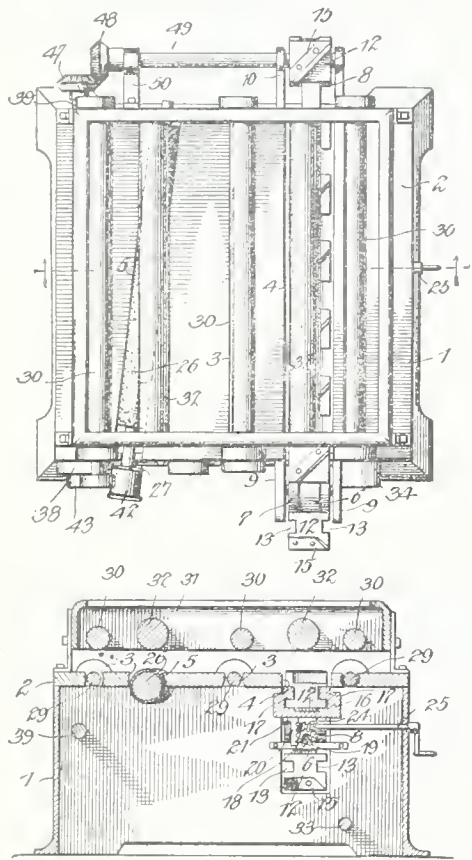
—CLEVER NEW PATENTS.

Wood Scraping and Smoothing Machine.—
Sad Iron Holder.—Baling Press.—Clutch
Mechanism.—Seal-Lock.

Wood Scraping and Smoothing Machine.

We present herewith a top plan view and a vertical sectional view through a wood scraping and smoothing machine, which is the invention of Mr. Nickels J. Matthiesen, of Clinton, Iowa. The machine is particularly adapted for scraping and smoothing flat surfaces of wood, such as door and window frames, and different kinds of panel-work.

As shown in the illustration, a supporting frame is employed, in which is located upper and lower sets of feed rollers, between which the work is passed. An endless chain is disposed transversely of the supporting frame and carries scraper blocks to which are secured scraping cutters. Guiding means for these blocks comprise a trough having a rib on each side extending longitudinally thereof, and engaging corresponding grooves in the blocks. Means are provided for adjusting the height of the trough, the adjusting means comprising a shaft disposed transversely of the main frame and having a gear at each end, together with rack bars extending



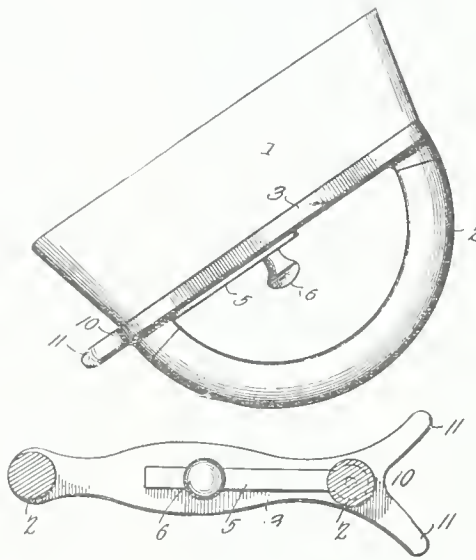
downwardly from the trough and meshing with the gears. A counter-shaft is provided at its inner end with a worm that engages a worm-wheel on the adjusting shaft and has at its outer end an actuating handle crank. A sand paper roller is also journaled in the frame, and is suitably driven by mechanism which also effects the operation of the scrapers.

In use, motion is imparted to the main driving-shaft from any suitable source of power, and thence through the various connecting devices to the feed-rolls, the traveling chain carrying the scraper-blocks, and to the sand-roll. The wood to be smoothed is introduced at the front of the machine between the feed-rolls, and is carried backward over the rapidly-moving scrapers, thence to the sand-roll, and finally out between the feed-rolls at the rear of the machine. In

this operation one side will have been dressed to the desired state of smoothness, and if it is desired to dress the other side also, the operation must be repeated.

Sad Iron Holder.

Mr. John H. Cox, of Erie, Kansas, has devised a sad iron, which will dispense with the necessity of a separate holder or support for such irons when the same are not in use and are heated. He has devised a detachable handle and supporting base, together with handle-receiving sockets formed in the base, and a spring-catch carried by the base for engagement with the

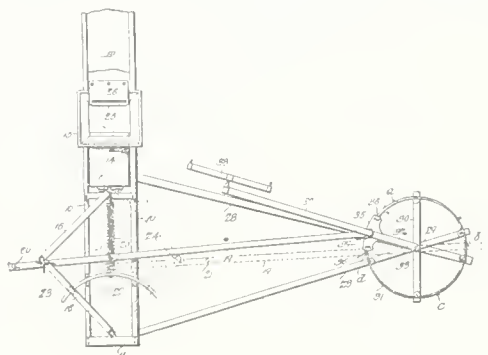


iron. This supporting base is provided with an integral forked extension 10, defining a pair of outwardly projecting divergent legs 11, extending in the same plane with the base. Thus, when the handle is applied to the body of the iron, the iron may be used in the ordinary manner, and when not wanted for use, its position is reversed, and it then rests upon the handle and the forked extension.

By the use of this support, the necessity for providing a separate stand for the iron is obviated, it merely being necessary to tilt the iron, when it will be balanced upon its support.

Baling Press.

A new baling press of extremely simple construction and smoothness in operation has been patented by Mr. George W. Robbarts, of Granbury, Texas, who has assigned a one-half interest to Mike C. and Henry H. Lemaster, of the same place. One of the features of the invention is the provision of means which will allow the plunger to remain stationary and in inoperative position without interrupting the operation of the horse-power or other motor, thereby facilitating



the feeding of the press. A frame is provided on which is mounted a compression-chamber 13, and in this compression-chamber is located a reciprocating plunger 14. Toggle-links 16, connected to the plunger and frame impart movement to the former. A

pitman 19 is slidably connected with the links and extends transversely of the press frame.

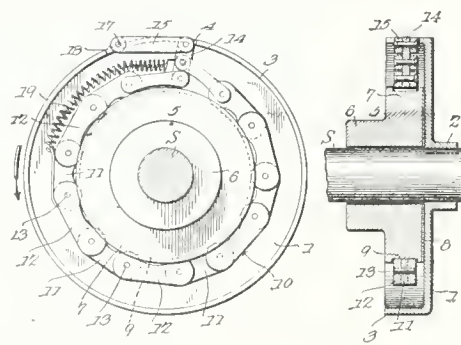
To support the toggle-links in their movement, there is provided an arc-shaped track 22, and on the lower surface of one of the toggle-links 16 is mounted a roll 23 in position to travel over the track 22.

In order to cause the plunger 14 to start on its return movement immediately after the completion of its forward movement into the compression-chamber, there is provided a spring 24, connected at one end with the inoperative face of the plunger and connected at the other end with the track 22.

A laterally projecting frame for the horse-power extends to one side of the press, and on the same is mounted a circular track 31 for said horse-power. A crank 32 pivotally mounted on the horse-power frame is supported on rolls, and a wrist-pin 34 projects upwardly from the crank. A strap 39 connects the wrist-pin and the pitman, and a sweep 37 is rigidly secured to the upper end of the wrist-pin, and has the draft attachment 38 secured thereto. It will be seen that twice in a single complete revolution of the crank of the horse-power, the plunger of the press remains stationary in inoperative position for a short time, thus affording opportunity for the feeder of the press to introduce a bale upon the next forward movement of the plunger.

Clutch Mechanism.

William W. Sweetland, of Edwardsburg, Michigan, has assigned to Messrs. Frank Sweetland and James Sweetland, of Angola, N. Y., a two-third interest in a patent obtained by him on a novel clutch mechanism. The invention relates to friction clutches of the type commonly known as "strap-clutches" in which a band faced with suitable gripping material surrounds a clutch member, and is brought into contact with substantially the entire periphery of said clutch member by tightening the band.



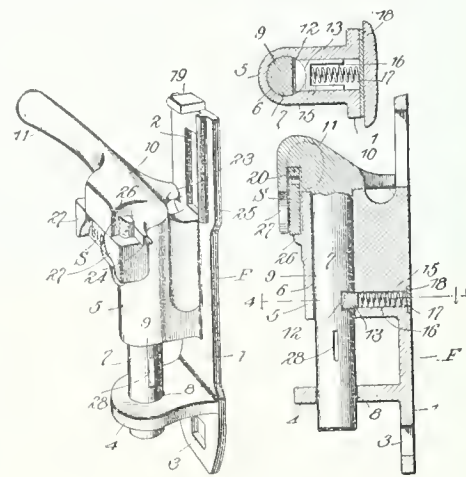
The object in view is to provide in a clutch of this type a substitute for the ordinary band or strap, which will act instantaneously both in gripping and releasing the clutch member, and will continue to operate satisfactorily after the parts have become very much worn. Other improvements reside in the mechanism for drawing the clutch into, and releasing it from, its operative relation. A clutch member is mounted on a shaft in the ordinary manner, and a driving member is also mounted on said shaft and is independently rotatable. The clutch member has its flange with a gap therein extending over the clutch member. A chain encircles the clutch member, and a lever, pivotally connected to both ends of the chain, projects into the gap in the flange. A

spring operates upon the lever to keep the chain normally tight, and link connections are made between the outer end of the lever and the driving member.

The operation of the clutch is as follows: When the driving member is rotated in the direction indicated by the arrow, and a pull is exerted upon the plates 15, the chain 10 will be tightened around the periphery of the disk 7, and the clutch member will be so firmly gripped that the driving member and the clutch member will rotate as a single structure. When the driving member is turned in the direction opposite to that indicated by the arrow, a push will be exerted upon the side plates 15, and the lever 14 will be swung in the direction to loosen the chain, so that it will no longer grip the periphery of the disk 7. The action of the lever in tightening or loosening the chain is practically instantaneous, and the wear upon either the chain or disk is consequently very slight. Moreover, the gripping engagement of the chain with the rim of the disk is brought about simultaneously in all the parts of the chain, so that the wear upon the various parts is distributed with uniformity.

Seal-Lock.

In 1903, William Sebring, of Colorado Springs, Colorado, secured a patent on a seal-lock, and has now obtained another patent for improvements thereon. The object of the new invention is threefold in its character, and includes the provision of means to prevent the accidental breakage of



the seal by the oscillatory movement of the locking-bolt occasioned by the jolting of the car while in motion, the provision of means to prevent the exposure of the recess in the locking-bolt with which the spring latch engages, and the formation of the seal-retaining portions of the locking-bolt and bolt-support in such manner that the breaking of the seal is facilitated when the proper effort is made for this purpose. In carrying out the invention a bolt-support is provided having a seal seat. A bolt 7 is longitudinally and rotatably movable in the support, and is provided with a head 10, having on the underside thereof a slot 20, with open ends for the reception of the upper portion of a seal placed in the seal seat. The slot is of greater width than the thickness of the seal, and has at one end a lateral recess to present a shoulder 22, for engagement with the inner face of the seal. Means are arranged upon the bolt head for rotating the bolt in the bolt-support, and a latch 13 is provided in the bolt-support to hold the bolt against longitudinal movement, when the seal is positioned in the seal seat and the bolt is brought into engagement therewith.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

SAMPLE v. AMERICAN SODA FOUNTAIN CO. et al.

(Circuit Court, E. D. Pennsylvania. January 14, 1905.)

PATENTS—SUIT FOR INFRINGEMENT—REHEARING AFTER FILING OF DISCLAIMER.

A patentee has the right to file a disclaimer in the Patent Office during the pendency of a suit for infringement, although the case has been heard on appeal; and where such a disclaimer has been filed for the purpose of avoiding the grounds on which the appellate court declared the patent invalid, and before a decree has been entered, the Circuit Court has power in its discretion to grant a rehearing on equitable terms, the patent as it stands being essentially a new one, the validity of which was not before the appellate court.

A. LESCHEN & SONS ROPE COMPANY v. BRODERICK & BASCOM ROPE CO.

(Circuit Court of Appeals, Eighth Circuit. December 24 1904.)

1. TRADE-MARKS—UNFAIR COMPETITION—FEDERAL COURTS—JURISDICTION.

In a suit between citizens of the same state for infringement of a trade-mark, the federal court has no jurisdiction of an issue of an alleged unfair competition; its jurisdiction being confined to the trade-mark as registered.

2. SAME—REGISTERED MARK.

In a suit in the federal courts for infringement of a trade-mark between citizens of the same state, the validity of the trade-mark depends on the mark as registered, and not as used by complainant in the manufacture of its goods.

3. SAME—COLORED STRAND OF WIRE.

An alleged trade-mark, consisting simply of a colored strand in a wire rope, not restricted to any particular color is invalid.

4. SAME—REGISTERED MARK.

A registered trade-mark, consisting of "a red or other distinctively colored streak applied to or woven in a wire rope," without further describing the streak, was too indefinite to be sustained as a valid trade-mark.

WESTON ELECTRICAL INSTRUMENT CO. v. STEVENS et al.

(Circuit Court of Appeals. Second Circuit. November 3, 1904.)

1. PATENTS—REISSUE—ELECTRICAL MEASURING INSTRUMENT.

The Weston reissued patent No. 11,250 (original No. 433,657) for an electrical measuring instrument used for measuring the difference of potential between the terminals of an alternating current circuit, while disclosing patentable invention in so proportioning the parts of the apparatus as to reduce the effect of self-induction to a negligible quantity, is invalid as a reissue because the description in the original patent fails to show such invention, or that it was intended to be secured thereby.

2. SAME—INVENTION.

The Weston patent, No. 470,340, for an improvement in the electrical measuring instrument described in the patentee's reissue patent, No. 11,250, is void for lack of patentable invention in view of the prior art.

NORTH JERSEY ST. RY. CO. v. BRILL.

(Circuit Court of Appeals, Third Circuit. January 3, 1905.)

PATENTS—INVENTION—CAR TRUCKS.

The Brill patents, Nos. 627,898, and 627,900, for car trucks, granted on a divisional application as to most of their claims, are void for lack of invention in view of the prior art, and especially of the Thyng patent, No. 4,276 which discloses every element of the Brill combination, with the exception that the links by which the semi-elliptic springs are suspended from the side frame of the truck were not elastic or extensible. Such links, however, were old in the art at the time of the Brill patents, and if any of the claims therein are valid, they are limited to the specific form of link described. As so limited, held not infringed.

PETERS v. HANGER.

(Circuit Court of Appeals, Fourth Circuit. November 15, 1904.)

PATENTS—ACTION AT LAW FOR INFRINGEMENT—ISSUES AND PROOF AS TO LIMITATION.

Act March 3, 1897, amendatory of Rev. St. § 4921 (29 Stat. 694, c. 391 [U. S. Comp. St. 1901, p. 3395]), and which provides that, in any suit or action for infringement of a patent, there shall be no recovery of profits or damages for any infringement committed more than six years before the filing of the bill or the issuing of the writ in such suit or action, applies not only to suits in equity under said section 4921, but also to actions on the case to recover damages for infringement, brought under section 4919 [U. S. Comp. St. 1901, p. 3394.] The amendment is not a statute of limitation, but a qualification upon the right of recovery, and need not, therefore, be specially pleaded by defendant in an action under section 4919; but in view of the fact that the condition is imposed by a later enactment, and is not an exception in the original statute giving the remedy, it is a matter of defense, and the general rule in trespass applies—that the time is immaterial—and plaintiff (by force of Code, Va. 1904, § 3245) is not required to allege the time of infringement, nor to prove it if stated under a verdict; but defendant, if he seeks to avoid recovery on the ground that the infringements proved by plaintiff were committed more than six years before suit, has the burden of proving such fact, which he may do under the general issue.

CLEVELAND FOUNDRY CO. et al. v. **SILVER & CO.**

(Circuit Court of Appeals, Second Circuit. February 3, 1905.)

PATENTS—INFRINGEMENT—OIL BURNERS.

The question of infringement of the Jeavons patent No. 475,401, for an oil burner, by the device of a subsequent patent, held too doubtful on the evidence to warrant the granting of a preliminary injunction.

BROWN v. HUNTINGTON PIANO CO.

(Circuit Court of Appeals, Second Circuit. December 6, 1904.)

1. PATENTS—INVENTION—MUSIC DESKS FOR PIANOS.

The Brown Patent, No. 468,077, for improvements in music desks for pianos, consisting of mechanism by means of which the opening and closing of the fall-board automatically opens and closes the music desk, and when open locks it in position for use, was not anticipated, and while of narrow scope, and entitled only to a construction which limits its claims to the particular mechanism described, covers a device both simple and effective, and discloses patentable invention. Claims 1 and 2 also held infringed.

2. SAME—PATENTABLE NOVELTY—SIMPLIFYING COMPLICATED MECHANISM.

Patentable novelty may be found in an improvement which simplifies a complicated train of mechanism by eliminating some of its elements, with the result that defects due to the presence of those elements are done away with.

WERNER CO. et al. v. **ENCYCLOPEDIA BRITANNICA CO.**

(Circuit Court of Appeals, Third Circuit. January 11, 1905.)

1. COPYRIGHT—INFRINGEMENT—PRELIMINARY INJUNCTION, REVIEW.

The granting of a preliminary injunction in a suit for infringement of a copyright being within the discretion of the trial court, an order granting the same will not be set aside on appeal, unless it is clearly shown that the court abused its discretion, or was mistaken in its view of the situation.

2. SAME—OBJECTIONS NOT MADE AT TRIAL.

Where, on an application for a preliminary injunction in a suit for infringement of a copyright, defendant did not object or introduce proof to show that complainants' articles, alleged to have been infringed, were not derived from original sources, such objection could not be considered on appeal from an order granting such injunction.

3. SAME—LACHES.

Where, in a suit for infringement of copyright, it appeared that complainants and their predecessors in title had no knowledge of the alleged infringing articles until December, 1902, less than a year and a half

before suit brought, and that complainants prior to that time were not charged with notice thereof, and the infringing articles did not appear in defendant's publication at first, complainants were not barred by laches.

BICKMORE GALL CURE CO. v. KARNS et al.

(Circuit Court of Appeals, Third Circuit. February 1, 1905.)

1. UNFAIR COMPETITION—IMITATION OF LABELS AND DRESS OF GOODS.

Where two persons are engaged in selling like goods, while neither can acquire the exclusive right to aptly designate and describe them, or to attractively present them for sale, with appropriate directions for their use, neither has the right to do any of those things in such manner as to mislead purchasers into the belief that the goods are those of his competitor; and, where it is shown that the resemblances in such particulars are so calculated to mislead that they can reasonably be accounted for only on the hypothesis of simulation and design, a case of unfair competition is made out, which entitles the older dealer to an injunction, even though actual deception is not shown.

2. SAME.

The boxes, cartons, labels and advertising matter used by complainant and defendants in the sale of their respective remedies for galls on horses and cattle held to disclose such similarity as to evidence a design to deceive purchasers on the part of defendants, who entered the business after complainant's remedy had become generally known, and to constitute unfair competition.

EASTMAN v. MAYOR ETC., OF CITY OF NEW YORK.

(Circuit Court of Appeals, Second Circuit. December 15, 1904.)

1. PATENTS—VALIDITY—PRIOR PUBLIC USE.

The use of an unpatented invention upon a machine in actual service continued for years without any change therein, although it may have been experimental in the beginning, becomes a public use from the time the success of the invention is demonstrated, and a patent therefor issued on an application filed more than two years after such time is invalid.

2. SAME.

Under section 7, c. 88, Act March 3, 1839, relating to patents (5 Stat. 354), a patent was void if the invention covered thereby was in public use more than two years before the application was filed, whether or not such use was with the consent or allowance of the inventor, at least unless it appears that the use was fraudulent, surreptitious, and piratical.

3. SAME—SURREPTITIOUS OR FRAUDULENT USE.

Where the inventor of an improvement in pumps for fire engines had the device placed on an engine of which he was in charge as engineer, where it was publicly tested, and thereafter used successfully for many years without material alteration, and was shown and explained by the inventor to the manufacturers of the engine without any injunction of secrecy, the action of the manufacturers in placing the device on an engine which they subsequently built for another city did not involve any breach of trust or confidence such as to render the use of the invention on the new engine surreptitious, fraudulent, or practical, and defeat its effect as a public use, even though they knew that the inventor contemplated applying for a patent.

4. SAME—EXPERIMENTAL USE.

An inventor has a reasonable time in which to experiment for the purpose of perfecting his invention and demonstrating its utility, and the time thus spent, if in good faith, is no part of the two-year period of limitation.

5. SAME.

The experiments made during the experimental use of an invention must be in perfecting the invention as described and shown; experiments made in testing parts of the machine not covered by the invention will not have the effect of extending the two-year period of limitation.

6. SAME.

As soon as an invention is completed, viz., in such condition that the inventor can apply for a patent for it, the two-year period of

limitation begins to run, and the application must be made within this period. The fact that the invention has been improved since its original embodiment does not demonstrate that it was then embryonic or incomplete.

SAME—BURDEN OF PROOF.

When a clear case of prior public use is established, the burden is on the inventor to prove by convincing proof that the use was experimental.

S. SAME—MISTAKE OF SOLICITOR.

The fact that an inventor delayed in making application for a patent, under the advice of his solicitor, does not prevent the running of the statutory period of limitation from a prior public use from rendering the patent invalid.

9. SAME—PUMP FOR FIRE ENGINE.

The Knibbs patent No. 42,920, for an improvement in fire engine pumps, while covering an invention of great merit, was void for prior public use of the invention on at least two engines for more than two years prior to the filing of the application.

WOLFF et al. v. E. I. DU PONT DE NEMOURS & CO.

(Circuit Court of Appeals, Third Circuit. January 27, 1905.)

PATENTS—INFRINGEMENT—PROCESS OF MAKING SMOKELESS POWDER.

The Von Freeden patent, No. 429,516, for a process for manufacturing smokeless gunpowder from nitrocellulose, as to claim 1, held valid, but not infringed. Claim 2 held void for lack of invention.

RAYMOND v. KEYSTONE LANTERN CO. et al.

(Circuit Court of Appeals, Third Circuit. January 23, 1905.)

PATENTS—INFRINGEMENT—LANTERNS.

The Wright patent, No. 476,506, for an improvement in wick-raiser attachments for lanterns, is merely for a new combination of old parts performing an old function, and entitled to only a narrow construction in view of the prior art. As so construed, held not infringed.

J. STEVENS ARMS & TOOL CO. v. DAVENPORT et al.

(Circuit Court of Appeals, First Circuit. January 2, 1905.)

PATENTS—INVENTION—SHELL EXTRACTORS.

The Davenport patent, No. 565,605, for a shell-extracting mechanism for guns discloses patentable novelty and invention; the device being an advance over the prior art in simplicity, strength, and durability. Also held infringed.

AEOLIAN CO. v. HALLETT & DAVIS PIANO CO.

(Circuit Court, D. Massachusetts. February 14, 1905.)

1. PATENTS—SUIT FOR INFRINGEMENT—TITLE TO SUPPORT.

A bill of sale executed by a corporation, shown to have been at the time the owner of certain patents, conveying all of its stock in trade, assets, and property, specifically including "the patent properties which are held by the party of the first part," vested the purchaser with title to such patents, which will support a suit for their infringement, although no patents were specifically described therein.

2. SAME—VALIDITY AND INFRINGEMENT—MOTOR FOR MECHANICAL MUSICAL INSTRUMENTS.

The Kelly patents, Nos. 356,690 and 357,933, both relating to motors, in which bellows are employed to rotate a shaft for use in mechanism for playing musical instruments, cover combinations of elements not anticipated in the prior art, and which, in view of the peculiar adaptability of the motor shown for feeding the music sheet over the tracker board in playing a musical instrument, or for other analogous uses required light, quick, and sensitive work, disclose patentable invention. Claims 1 and 3 of the first patent and 1 of the second held infringed by a motor having in principle the same mode of operation and used to operate a mechanical piano player, whether or not such player comes within the strict definition of a "musical instrument."

MECHANICAL INVENTIONS AND DESIGNS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

Benjamin F. Shepherd, Carlock, Ill. Box Loop for Harness.—The harness loop of this patent is designed for connecting the front end of a trace with the hame tug, and it is distinguished by its great simplicity, strength, and durability. It is capable of being readily applied to a trace, and it will permit the same to be quickly lengthened or shortened. It is held firmly against the inner face of the hame tug, and is thereby prevented from chafing, or otherwise annoying, or injuring an animal. The box loop is composed of inner and outer resilient sides hinged together at one end of the loop, and provided at the other end with overlapped resilient flanges, having means for automatically engaging each other. A stud is mounted on one of the sides, and a spring is mounted on the other side for holding the trace and the hame tug firmly in engagement with each other and with the stud.

Henry E. W. Kirkland, Smithdale, Mississippi. Cotton and Rice Chopper.—The cotton and rice chopper covered by this patent is capable of rapidly cutting out cotton and rice plants, and it will permit a horse to walk in the furrow at one side of the row operated on, and is provided with a guide wheel arranged to run in the furrow at the opposite side of such row, whereby the cotton chopper will be maintained in proper position with relation to the plants. The frame of the cotton and rice chopper has its side bars laterally offset between their ends to provide an open space in which operates a blade or hoe. The blade or hoe is mounted on a longitudinal shaft, which is journaled at the front and back of the said space, and which is connected by gearing with a pair of rear wheels. A combined guide and supporting wheel is arranged at one side of the front of the frame, and a clevis is located at the opposite side of the same for the attachment of the draft animal.

James Powers, inventor, New York, N. Y.; Robert J. Louis, assignee, same place. Coin Controlled Photographic Apparatus.—This machine enables a person standing before the same to have his picture taken and delivered to him without any co-operation on his part aside from the depositing of a coin, which serves to start the apparatus into motion. Within the casing a number of photographic plates are stored in a magazine. The casing also contains a lens tube, a developing tray, a tank for holding a considerable quantity of developing solution, valve mechanism controlling the escape of said solution from the tank to the developing tray, a plate carrier for carrying the plate from the magazine to the lens tube for exposure and thence to the developing tray, a feeder for feeding the plates, one at a time, to the carrier from the magazine, an ejector for ejecting the finished plate from the carrier, and a coin-controlled motor arranged to operate the several recited mechanisms in proper order.

Benjamin F. Johnson, Miguel, Tex. Insect Collecting Machine.—This machine is particularly interesting at this time in view of the efforts being made to exterminate the cotton boll weevil, for the collection of which insects the machine was especially invented. The device includes a wheeled vehicle equipped with a suction apparatus arranged to draw the insects and infected vegetation through a pair of suction tubes, which extend down upon opposite sides of a row of plants and

terminate in flat sided funnels. From these tubes the insects and diseased leaves, etc., are projected into a receiver having open-work walls, through which the dust readily escapes behind the driver. When a sufficient quantity of insects have been collected, they are removed from the receiver and destroyed in any desired manner.

Oliver E. Ellison, inventor, Chattanooga, Tenn.; Ernest Prentice, assignee, same place. Disk Plow.—This plow is of a reversible type, and is unique in that the entire frame structure includes a single beam and a pair of axles. The beam extends forwardly from the rear axle adjacent to one end thereof, and is formed with a laterally deflected portion. The axle is supported at its opposite ends by the rear furrow wheel and the land wheel. Mounted on the axle between the frame bar or beam and the rear furrow wheel, is a rocking beam carrying reversely disposed disks at its opposite ends. One of these disks extends into the deflected portion of the frame bar and in proximity to a disk scraper, a similar scraper being mounted on the rocking beam in proximity to the other disk. Carried by the frame bar is a lever by means of which the rocking beam is tilted in one direction or the other, so as to raise one disk above the ground and to lower the other disk into operative position. The front end of the frame bar is equipped with a short axle supported by the front furrow wheel and with the usual appliance for connecting the doubletree. The driver's seat is mounted on the rear axle in such position that the driver can readily operate the lever to throw down either disk.

Fred P. Green, East Aurora, N. Y. Train Controlling and Signaling System.—This is an electrical system extending along the railway and so arranged that in case of necessity a train dispatcher, by the simple act of closing a switch, may operate a signal on a moving train and simultaneously apply the air brakes of the train, regardless of the location of the latter. The locomotive or other vehicle is equipped with air brake apparatus including an emergency valve. This valve is operated by an electrical motor located in a normally open motor circuit. This motor circuit is controlled by a relay carried by the vehicle and included in a normally open controlling circuit. This controlling circuit includes a line wire having a controlling switch and a series of contact fingers. One side of the relay is grounded, and a contact shoe is electrically connected with the other side of the relay and moves with the vehicle for presentation to the fingers. If the controlling switch has been closed by the train dispatcher, the controlling circuit will be closed as soon as the contact shoe comes into engagement with one of the contact fingers. The relay will thus be energized and the attraction of its armature will close the motor circuit in which the signal, as for instance, an electric bell, is located. This signal will be sounded to apprise the trainmen of the danger, and the motor will simultaneously open the emergency valve to apply the brakes.

James C. Parker, Woodston, Kans. Two patents. Harvester and Binder.—The first of these patents discloses a simple fodder harvester and sheaf fodder. A corn sled is provided with a gathering bar spaced from one side thereof, a reel hook extended from the bar, and a knife or cutter. At the side of the sled adjacent to the gathering bar, is a vertical arch which assists in guiding the corn stalks to the platform of the sled. Upon the sled is disposed transversely, at a point somewhat in advance of the knife, a sheaf forming and binding device comprising a pair of arcuate bunching members, which normally rest upon the platform in position to receive the

corn or other cereal reeled on the platform by the hook. When the harvested material has been accumulated in sufficient quantity, these bunching or sheaf forming members are swung up to form a closely packed sheaf. These members carry a tie, the ends of which are crossed by the act of raising the forming members. The ends of the tie may be twisted together; or, if the binder disclosed in the second patent is employed, this twisting of the ends is unnecessary. The new binder is merely a strand of wire formed with double-ended projections at its opposite ends. When this tie is carried around the sheaf, either in the formation thereof or later, the ends of the tie being crossed, the projections thereof interlock automatically.

Arthur P. Draper, Mineral, Kansas, Skate.—This device is exceedingly ingenious, and is designed for use upon packed snow, crust, and the like, though it has proven entirely satisfactory upon ice. It is constructed of sheet metal having a broad running surface, and being transversely curved in order to provide cutting edges that will prevent lateral slipping. Yielding connections are made at the ends of the runner with the foot-piece, and a novel yet simple form of clamp is provided for securing the skate to the shoe of the wearer.

Nels G. Davidson, Anaconda, Mont. Plotting Instrument.—The above entitled invention is intended for use by pattern draftsmen and sheet metal workers in obtaining the desired angles and pitches when cutting pipe elbow blanks and the like. It practically obviates the necessity of profile drawings and involved calculations, now generally used in laying out this class of work. The device consists of a pair of blades pivoted between their ends, and having coacting straight edges provided with scales. One of the blades has a semicircular enlargement, on which are arranged degree scales concentric with the pivotal connection between the blades. These various scales and straight edges coact in a peculiar manner, and constitute a simple device for the purposes outlined.

Louis C. Werner, Knoxville, Tenn. Two patents. Block Signal System for Railways, and Semaphore Operating Mechanism.—The first patent shows a novel block signal system, which, although applicable to double track railways, is designed with special reference to the automatic display of signals at opposite sides of a single track over which trains are passed in both directions. The signals are preferably in the form of semaphores. Whenever a train moves into a block, four signals are displayed. Two of these signals are located at the ends of the block and at the opposite sides of the track, and the other two signals are located one block in advance and one block beyond the block thus occupied. The engineer of a train approaching from either direction is thus apprised of the presence of the train upon a block beyond that which he is about to enter. The system is so arranged that additional signals will be displayed when a second train passes into the block adjacent to the one already occupied, and likewise extreme danger signals will be displayed at any block in which a switch is located, when said switch is open. Each signal is of the four-position type, and is operated by two distinct motors arranged to be positively operated in each direction. Between the signals and the motors are located differential connections, whereby a signal may be moved from safety to caution, or from safety to danger, or from safety to caution and thence to danger, or from safety to extreme danger, by the operation of one or the other, or both, of the motors. One of the patents covers

the system, and the other the arrangement of motors and connections constituting the signal operating mechanism.

Charles W. McWane, inventor; Henry E. McWane, assignee, Lynchburg, Va. Collapsible Core Barrel.—In the manufacture of cast iron pipes, a core is ordinarily employed, called the barrel, and the present invention relates to improvements in this class of devices. In the new construction, a hollow supporting stem is employed, around which a plurality of loose staves are located, connected thereto by means of headed bolts or rivets, passing through keyhole slots in the stem. The barrel is held in extended condition by means of material placed between the staves, such material being of a nature that will burn out when the molten metal has been poured into the mold, thus permitting the core to collapse so that it may be readily removed.

James C. Slater, St. Louis, Mo. Two patents. Automatic Telephone System, and an Escapement for such Systems.—The system disclosed in the first patent is of that type wherein the subscribers are enabled to connect with and call up each other without the necessity for the intervention and assistance of a switchboard operator. The present patent is intended to cover an improvement upon the apparatus disclosed in former patents secured by Mr. Slater, the novel feature consisting in means which provides for secrecy in the use of the system by causing an alarm to be sounded whenever a subscriber hangs up his receiver, without removing the number pin from the dial to disconnect the subscriber recently called. This alarm continues to sound until the number pin is removed, and can be heard by any subscriber who places the receiver to his ear, thus apprising him of the fact that someone is still in circuit. The novel structure comprehends the telephones having receiver supports, a selector switch controlling the electrical connections of the telephones, indicating mechanism controlling the selector switch and including a movable arm, a dial provided with a plurality of apertures, and a number pin designed to be inserted in either of the apertures to limit the movement of the indicating arm, an alarm circuit including an alarm and also including the number pin when the latter is in the dial, and a circuit closing device arranged to close the alarm circuit when the receiver support is moved by the act of hanging up the receiver. As soon as the number pin is removed from the dial, the alarm circuit is opened and will not be closed by the subsequent hanging up of the receiver. If the number pin is allowed to remain in place, the receiver acts as a circuit closer for the alarm circuit, and thus causes an alarm to be sounded until the pin is removed and the telephone thus disconnected.

The other patent discloses an escapement or stopping and releasing mechanism for the rotary element, which constitutes controlling means for the selector switch of the above-described system. It includes a wheel having a smooth periphery and a series of lateral projections. Co-operating with this wheel is an escapement lever provided at one end with an arcuate arm. At opposite ends of this arm are opposed pallets alternately presentable in the path of the projections by the movement of the lever in opposite directions. The lever is operated by means of an electro-magnet, and one of its most important functions is the retardation of the wheel, effected just as one of the pins or projections on the wheel comes into contact with a pallet so that liability of rebound or of breakage is reduced to a minimum. To effect this retardation, the lever, in one position thereof, bears against the periphery of the wheel and acts as a brake.



Advertisements inserted in this column for 15 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—Design Patent No. 37,343—14 years—issued February 14, 1905. Ornamental Christmas tree, parlor vine and flower support or stand. Useful in the home, also for decorating churches and halls. Send for booklet. Address, Miss C. J. Taylor, Carbon, Indiana. jy

FOR SALE—U. S. Patent No. 748,742, and Canadian patent No. 92,124. Hose Coupling Will give to some reliable manufacturer on a royalty basis, or will sell cheap for cash. The quickest reliable coupling made. Can be coupled and uncoupled one hundred and fifty to two hundred times per minute. Address, J. Jeffery, No. 33 Barbour Place, New Castle, Pa. jy

FOR SALE or on royalty—U. S. Patent No. 732,740, Canadian patent No. 48,697. Shingle Guide. Great labor saver for carpenters. Handy, and cheaply manufactured. Does away with driving nails in roof. Write, Andrew Sivertson, Auburndale, Wis. jy

FOR SALE or Exchange—Ten useful household articles, made from one 12-foot common ladder, viz: A 4-foot step ladder, a 6-foot step ladder; an 8-foot common ladder; a 10-foot common ladder; a 12-foot common ladder; also a wash tub bench, a clothes wringer and tub bench, a clothes rack, an ironing board and a very handy chair. Agents wanted. Write for terms and free circular, F. McNaughton, Raymond, Ill. jy

FOR SALE—Patent No. 776,007, dated Nov. 29, 1904. Bottle. All cash, or cash and royalty. Correspondence solicited. Address, Hilaire Vincent, 357 Amherst Street, Manchester, N. H. jun

FOR SALE—Patent No. 758,225, dated April 26, 1904. Electric Engine for the operation of light machinery, such as printing presses, pumps, fans, etc. Will sell outright or lease on royalty plan. Address, Alexis Vanderbeck, Box 4, Roseland, Kansas. jun

FOR SALE—Patent No. 777,996, dated Dec. 20, 1904. Basin Holder for bathroom. Cash or royalty. Address, Oscar R. Applegate, No. 1 Hudson Street, Trenton, N. J. jun

FOR SALE—Patent on Safety Box. Intended for the safe keeping of valuable papers, jewelry, etc. When tampered with or molested will give alarm by blank shot or continuous ringing of bell, which cannot be stopped except by owner. For terms and general information address, F. C. McPherson, P. O. Box 504, Beaver Falls, Pa. jun

FOR SALE—Patent No. 780,122, dated Jan. 17, 1905. Air Apparatus for Vessels. Address, Hans Nelson, Chippewa Falls, Wisconsin. jun

FOR SALE—Latest adjustable book clasp and lock combined. Model to demonstrate. Will sell at a sacrifice. Address, D. R. Reefer, No. 311 E. 3d Street, Plainfield, N. J. my

FOR SALE or on royalty—Patent No. 775,590, dated Nov. 22, 1904. Ash Sifter to connect with stove. Easy to manufacture. Big profit. Every household needs one. Will sell cheap for cash. Address, W. T. Whiteway, No. 225 Broadway, Cambridge, Mass. my

FOR SALE—Patent No. 780,824, dated Jan. 24, 1904. Automatic Telephone, together with Nos. 632,759 and 760,711, thoroughly tested and well improved; secret, simple, durable and reliable. Will sell outright or state rights. Address, James C. Slater, No. 3125 N. Newsted Avenue, St. Louis, Mo. my

FOR SALE or on royalty—Patent No. 777,943, dated Dec. 20, 1904. Accordion Plating Machine. Can be built for \$10. Other similar machines sell for \$250 to \$500. Address, Norman De Witte, 11 a Jefferson St. Watertown, N. Y. my

FOR SALE—Patent No. 754,450, March 15, 1904; and No. 775,401, Nov. 22, 1904. For a new class of city maps, showing all traction lines individually without colors. For publishers and map engravers. Send for sample. Address, E. Neubach, Edison Park, Ill. my

FOR SALE—Patent No. 773,618, dated Nov. 1, 1904. Combination steel, wood, and concrete railroad tie. For copy of patent and information. Address, A. J. Harlow, inventor, or I. W. Welsh, roadmaster B. & O. S. W. R. R., Mitchell, Indiana. my

FOR SALE—Patent No. 772,293, dated Oct. 11, 1904. Adjustable Suggy-Pop Brace. Will sell at a bargain for cash to divide the interests of owners. Address, W. M. Reese, Caledonia, Miss. my

FOR SALE—Patent No. 764,052. Match Lighting Attachment, patented July 5, 1904. This attachment is to be attached to lamps. Will sell cheap. For further information write to George C. Harrison, Elyria, Ohio. my

FOR SALE—Patent No. 772,528, dated Oct. 18, 1904. Horse-shoeing vise. Will sell exclusive right for cash. Nothing can equal it on the market. Address, J. Whitet, Washington, Kansas. my

FOR SALE—U. S. Patent No. 776,722, dated Dec. 6, 1904. Combination window shade fixture, dies, mixtures and customers. Address, Brumbaugh & Walters, No. 555 Mich. Street, Elkhart, Indiana. my

FOR SALE—Patent No. 767,007, dated August 9, 1904. Cultivator for mining sweet potatoes and other crops. Best in the world. Write for circular. Address, W. H. Page, Swedesboro, N. J. jun

FOR SALE—U. S. Patents No. 737,941, dated Sept. 1, 1903. Valve Cut Off for Tanks; and No. 769,550, dated Sept. 6, 1904. Supply and Service Tanks. Will sell cheap for cash. Send me an offer. Will lease on royalty. Address, P. J. Leithauser, Defiance, Ohio. jun

FOR SALE—Patent No. 776,922, dated December 6, 1904. A new pump, windmill or hand power. Satisfaction guaranteed. Address, P. J. Leithauser, Clarendon, Tex. jun

FOR SALE—Patents No. 774,693, Steering Apparatus for Ships, issued Nov. 8, 1904; and No. 755,928, Heat Regulator, March 29, 1904. Address, John Peterson, Lake George, N. Y. dec 05

WANTED.

WANTED—A manufacturer in iron and steel to manufacture adjustable wheelchairs. Just the thing wanted for ages. Anyone can tighten them with a wrench without removing the wheel from the vehicle. Address, R. S. Cutter, Ochiltree, Texas. jy

WANTED—To buy patents, rights, or ideas of some new and useful article. Preferably one which can be manufactured and sold in connection with the belting and mill supply business. Correspondence solicited. Address, F. Ranville Company, Grand Rapids, Mich. jy

WANTED—Bids for manufacturing by machine, new dishwasher from mesh-wire or perforated metal. Address, Box 305, Washington, Pa. jun

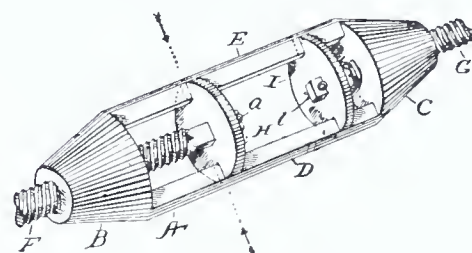
WANTED to place on royalty—Patent No. 776,690, dated Dec. 6, 1904. Banana Display Case. Wanted to place with reliable show case or store fixture manufacturing company. Not an experiment, but a SUCCESS. Address, D. D. Rush, Duluth, Minn. my

NOTICE TO MANUFACTURERS: I have a meat and vegetable chopper made of wood and metal. Have sold 200 from model in this city. On what terms can I get it manufactured? Address, Taylor M. Minor, Wabash, Ind. my

INVENTORS OF SHEET METAL, WIRE AND PLASTIC MATERIAL GOODS.

The Wiet-Goethe Company of Sacramento, California, owns the best tool room and plant on the Pacific Coast, for the manufacture of goods made from sheet metal, wire and plastic materials. It makes a specialty of the manufacture of patented articles only, and will be pleased to receive from inventors, particulars of articles of this character. The plant is fully equipped in every particular, and offers to the inventors an unusually good proposition. This will largely apply to men of small capital, who in this way, can command the services of a plant, which could not be duplicated for thousands of dollars. Address, Wiet-Goethe Company, Sacramento, California.

THE COWART SAFETY TURNBUCKLE.
Patented Feb. 16, 1904. Canada Protected.
FOR SALE.



Useful for car builders, steam shovels, ship builders and bridge builders. They will not work loose.

E. H. COWART,
PLEASANTON, CAL. jun.05

Drawings for Inventors.

If you want copies of the drawings of your patent, we can procure them at these prices:

12 copies, each sheet full size (8x13)	\$ 2 50
25 " " " " " "	3 50
50 " " " " " "	4 50
100 " " " " " "	7 00
500 " " " " " "	13 00
1000 " " " " " "	17 00

12 copies, each sheet reduced 1/3 (8 1/4 x 5 1/4)	\$1 25
25 " " " " " "	2 00
50 " " " " " "	3 00
100 " " " " " "	4 00
500 " " " " " "	7 50
1000 " " " " " "	9 00

These copies will be made by the photo-lithographic process, by the firm which formerly attended to the Patent Office work, and will be equally as good as the drawings accompanying your letters patent. Five hundred copies of your patent would cost you at least \$25. We can furnish 500 copies of the drawings, if contained on one sheet, for \$13 full size, or \$7.50, if reduced one-third, the same reduction as your letters patent drawings. Your valued orders solicited.

The Inventive Age Publishing Company,
WASHINGTON, D. C.

A NEW BOOK FOR INVENTORS.

Patents and How to Make

Money out of Them.

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trademarks and copyrights. It also tells accurately how and what to invent, how to sell inventions, place them on the market, interest capital in them, and to successfully promote a stock company. It also contains an index of forms worth double the price of the book to any one interested.

ELEGANTLY CLOTH BOUND.

GOLD STAMPED. \$1.00 Postpaid.

Sent with one subscription to AGE for \$1.75.

Or will sell separately.

Address— **The Inventive Age Pub. Co.,**
918 F St., N. W. WASHINGTON, D. C.

Thousands

of inventions in the field of Railway and Engineering are being patented every year.

The Railway and Engineering Review

carries more advertisements of patent attorneys than any other railway paper in North America.

For rates, address—

The Railway and Engineering Review,
1305 Manhattan Building, Chicago.

Bee-Keepers

Should all subscribe to

THE AMERICAN BEE-KEEPER,

(Established 14 years.)

50 cents per year.)

The best magazine for beginners. We will send it **Six Months on Trial** for **20 cents.** Sample copy free.

Address:

The American Bee-Keeper, Falconer, N.Y.

It is published by the

W. T. FALCONER, MFG. CO.

One of the oldest and largest makers of bee-keepers' supplies. Catalogue free.



Attention Inventors!

LISTS OF MANUFACTURERS FURNISHED.

We have increased our facilities for furnishing lists of manufacturers, and now cover every line of industry.

Our charge for each list is one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad will be inserted three times.

THE INVENTIVE AGE PUBLISHING CO., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

The Inventive Age

AND PATENT INDEX.

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 918 F Street, N. W.,

WASHINGTON, D. C.

The INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND A HALF.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

The INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 15 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,

WASHINGTON, D. C.

Entered at the Post-office as 2nd class matter.

WASHINGTON, MAY, 1905.

THE WORK OF THE PATENT OFFICE.

In the Official Gazette of May 16, 1905, appears the weekly report of the condition of work of the different divisions of the Patent Office, as it stood at the close of business, May 9, 1905.

The total number of applications awaiting action was 16,311. This does not include trademarks, designs, labels and prints, which are considered in a separate division of the Patent Office.

One can get a fair idea of the active arts of the Patent Office by examining the report. For instance, the division of air and gas engines, air and gas pumps, and pneumatics, has 855 applications awaiting action.

The division of electricity, conductors, lighting, and signaling apparatus, has 755 applications awaiting official action.

The division of bridges, masonry, conveyers, cranes and derricks, excavating, fire-proof buildings, hoisting, hydraulic engineering, loading and unloading, and towers, has 741 applications awaiting official action.

There are now two divisions of the Patent Office which are between three and four months in arrears in the first official actions on applications for patents. There are, however, seven divisions of the Patent Office now considering cases which were amended in January. This means that an applicant whose application is assigned to anyone of those divisions, is compelled to wait from three to four months for an official action on each amendment.

When it is borne in mind that applications for patents are frequently acted upon a half a dozen times, it is plain how a year or two might go by without a case being brought to a definite conclusion. The work of prosecuting applications for patents is more laborious today than it ever was, and when we reflect, we are moved to pity the work of the patent solicitor fifty years hence. In

that time, the number of patents issued by the Patent Office will amount up into the millions; and if the Patent Office changes as much in its practice in the next fifty years, as it has during the last twenty years, we cannot imagine a more difficult task than that of obtaining patents in the year 1950.

But, coming down to present conditions, we urge all inventors to fully inform themselves concerning the condition of work in the United States Patent Office, and not blame their attorneys when there is delay in obtaining the allowance of patents. In some instances, it may be the fault of the attorney in not responding within a reasonable time to the official actions. The greatest delay, however, comes in the Patent Office. Not so much in waiting for the first official action, but in obtaining a second or third action from the Patent Office, in answer to an amendment or argument filed to avoid the objections urged against the application.

The U. S. vs. The English Interpretation of Patents.

While the English Patent Office has introduced a limited examination system in its scheme of examination of applications for patents, and in this respect has copied from us, there are many points of difference between the U. S. practice, and the practice which obtains in the English Patent Office and courts in the interpretation of patents. Some things which we regard as vital, the English Patent Office looks upon as immaterial. For instance, in this country if one claim of a patent is invalid, it may be disclaimed, and the patent sustained; whereas in England, one claim of a patent, if proved to be invalid, renders the whole patent void. Again, in this country, a claim cannot be functional or expressed in the alternative; it must be definite and set forth a clear idea of means. In England the claims of patents may be defined in functional terms. Again, in this country only one form of an invention can be claimed in a patent. If there are several modifications of the same generic idea, they can be shown and described in the patent, but only one specific form can be claimed: it being necessary for the patentee to protect the modified forms by generic claims. In England specific claims may be made for each modified form. In the American practice it is customary to define the same invention in a number of different ways, and to accomplish this purpose, a large number of claims is frequently necessary to set forth the metes and bounds of the patent. This is regarded as good practice. In England, however, a multiplicity of claims is generally looked upon as a source of weakness, for if any one of the claims is proved to be old, the patent is invalid. One reason why the English patent need not have so many claims is because the English Patent Office allows an applicant to express the functions of the elements of the invention in the claims, and in this way the germ of the invention is able to be covered by a less number of claims. The specification and claims accompanying U. S. patents are, therefore, not serviceable for use in the English Patent Office, and it would seem to be the part of wisdom for American inventors to have their applications for the English Patent Office presented along lines which accord with the English practice; otherwise, they are pretty apt to secure patents which will not be sustained by the English courts.

THE DIVISION OF APPLICATIONS FOR PATENTS.

It is very difficult for inventors to understand why it is that their applications for patents have to be divided. An inventor may have secured a patent five years ago on a printing press, claiming a feeding device and a delivery device in one patent. Today, if he should apply for a patent on the same improvements, and claim a new form of a feeding device, and a novel delivery mechanism, he would be met with a requirement of division. This for the reason that, owing to the increase in the number of patents, it has become necessary to divide up the patents on printing presses to relieve the work of the examiners of the Patent Office. The inventor, however, can not understand why he is unable to secure in a patent today, as much as he obtained five years ago, and refuses to accept the explanation that the only reason is the Patent Office has changed its practice.

So far as the question of division is concerned, there is practically no precedent which can be regarded as controlling. There is a Committee on Classification in the Patent Office, which is constantly classifying and reclassifying the patents. Changing conditions in the Patent Office compel this. For instance, the large number of patents which have been issued on what are styled "Non-Refillable Bottles," required the Patent Office to establish a number of sub-classes of patents under bottles and jars.

The man who first invented the grain binder, was able to cover everything in one patent. But if he should today present an application for patent in this class, he would have to apply for one patent on the reel; a second patent on the cord knoter; a third patent on the tension and take-up device; a fourth on the general structure; a fifth on the cutting apparatus, and so on throughout the machine.

Suppose, however, that the Patent Office should allow the inventor to claim today every improvement relating to a harvester in one patent. What would be the result? Why no such thing as the proper classification of patents could be effected! One man comes to the Patent Office and claims only an improved cord knoter. Other men follow him along the same line. After awhile, the patents become sufficiently numerous to warrant the formation of a sub-class of "Cord Knotters," and thereafter, when an application for patent is filed claiming an improved cord knoter, all the examiner of the Patent Office has to do is to look in the particular sub-class, where all the improvements in cord knotters have been segregated, and determine if the particular invention is met by what has already been patented. Suppose, however, there was no separate sub-class of cord knotters, what would the examiner have to do? He would be obliged to examine through the entire class of harvesters, a proceeding which might take him a week, particularly when it is remembered that some of the patents on self-binders contain a large number of sheets of drawings and the inventions are quite intricate. Thus, for a government fee of \$15, the applicant would

compel the Patent Office examiner to take a week of his time to determine the patentability of one invention.

We sometimes think that the Patent Office carries this question of classification too far, and that some of the sub-classes are artificial and not real sub-divisions of the general class of inventions; but in the main, the classification of the patents is excellent and must be preserved in order to insure accuracy in making preliminary examinations. The only way to do this is by requiring division in all cases where well-defined classes have been established, due to the actual demands of the business of the Office. Of course, this weighs heavily on some inventors, but, as the Patent Office has decided in a number of cases, individual considerations must give way to the paramount one of the interests of the entire public.

REGISTRATION OF TRADE-MARKS.

As was expected, the business of the Trademark Division of the Patent Office has materially increased. According to the last report, in the neighborhood of 3,000 new applications have been presented since April first and over 2,600 were awaiting official action.

Evidently, manufacturers are seeking an early opportunity to take advantage of the wise provisions of the new trademark law. In this respect, we think they show good business judgment, for it appears to be conceded that the law gives greater protection to the owners of trade-marks than ever before.

Such well-known manufacturers as The N. K. Fairbanks Company, of Chicago, Illinois; Levering Coffee Company, of Baltimore, Maryland; Chickering and Sons, of Boston, Mass.; George Frost Company, of Boston, Mass.; and Walter Baker & Company, of Boston, Mass., have re-registered their valuable trade-marks under the new law.

It seems to be appropriate at this time to enumerate the various advantages of registering or reregistering trade-marks under the law of 1905.

In the first place, the new statute is undoubtedly more liberal than the Patent Office has heretofore been as to what constitutes a valid trade-mark.

Secondly, it affords the right of appeal from an unfavorable decision of the Commissioner of Patents to the Court of Appeals of the District of Columbia, thus giving the final decision to a court of three judges instead of one man.

Thirdly, if another than the real owner should register a mark, ways are provided for ousting the wrongful registrant in favor of the rightful owner.

Fourthly, the term for which registration is in force is fixed for twenty years, with the privilege of extending the time, and the Government fee for registering and for each extension is \$10.

Fifthly, all registered trade-marks must bear a proper notice to the effect that they have been registered in the U. S. Patent Office.

Sixthly, an important and valuable feature resides in the provision where-

by an injunction granted in one jurisdiction can be served upon the defendant anywhere in the United States, and contempt proceedings can, in like manner, be instituted in any other circuit court, thus making it practically impossible for an infringer to avoid service and punishment by merely changing from one State to another.

Seventhly, a right of action in the United States courts is given against an infringer who uses the mark in interstate commerce.

Eightly, when a verdict is rendered in favor of the plaintiff, the Court may enter judgment for increased damages to the extent of not more than three times the actual damages found, thus compelling the infringer to pay a penalty for his infringement.

Ninthly, in assessing profits, the plaintiff shall be required to prove defendant's sales only, and the defendant must prove all elements of cost which are claimed, thus materially aiding the plaintiff in securing the damages actually due him.

Tenthly, where a verdict is found for the plaintiff, the Court may order the defendant to deliver up for destruction all labels, signs, prints, packages, wrappers, or receptacles bearing the infringing trade-mark.

These and other provisions make it important for all manufacturers and sellers of goods, wares, or merchandise, to have their trade-marks registered or re-registered under and in accordance with the provisions of the new law, for thereby will they be able to secure adequate protection throughout the United States.

FIRST PATENT IN CHINA.

The Chinese Government has granted its first patent. It is for an electric lamp, the inventor of which is an inhabitant of Nankin, the old capital of the Chinese Empire, who calls his lamp the "Bright Moonlight," and asserts that it is far superior to foreign glow lights that heretofore have been sold at Shanghai and other Chinese cities.

The fact that China has entered upon the granting of Letters-Patent, is undoubtedly of more importance than the particular invention. We will not expect to hear of any great geniuses developing among Chinamen owing to the inauguration of a patent system, for any nation that still plows with a wooden implement, and grinds wheat in the primitive fashion that was in vogue in the dark ages, is not apt to appreciate to the fullest extent the advantages of a system that protects inventions by the granting of patents.

China is one of the few countries which held out for many years against the grant of patents on inventions. The principal countries now, where patents are not granted, are Holland, Servia, Roumania and Bulgaria; though we understand that some effort is being made to have a patent law passed in Holland.

Subscribe for the Age.

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the INVENTIVE AGE, which publishes a list of all patents issued each month, and the current decisions of the courts in patent, trade-mark and copyright matters. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

Filling the Long-felt Want.

Nothing is more provocative of a smile than the statement that some one has filled a long-felt want. The saying has become trite. It is used nowadays more in sarcasm than in earnest, and yet there is nothing more true than the fact that the filling of a long-felt want is the surest road to prosperity.

A recent publication contains an interesting recital of the careers of men who have accumulated fortunes through their keenness of vision in seeing that something was lacking, and their ability to supply the deficiency. The blacksmith who devised the combination iron hoops and bolts which are used to fasten water tanks and large casks, is enjoying an income of \$30,000 a year. The workman who first proposed to weld the steel rails of electric roads has already received \$300,000 in royalties. The farmer who knew the effectiveness of a family liniment and began to peddle it through his county now manages to exist comfortably on an income of \$1,000 a month. A court house janitor who spent 85 cents of his hard-earned wages on his way home in order that the children might have the pleasure of riding upon the merry-go-round was even wiser than the average man. He argued that if he spent 85 cents out of his meager earnings, other people would pay for amusement also. So he mortgaged his family goods to make a first payment on a merry-go-round for himself. Then he began to take in other people's money, and now he travels in a private car, and has several carnival shows upon the road.

These instances are not exceptions. Fortune after fortune has been made because somebody made it his business to provide something for which the world was waiting. If you produce an essential article, a purchaser will always be waiting to buy it, and the price which it will command will depend altogether upon its quality, necessity, and exclusiveness. In the markets of the world, brains are bought and sold, and those brains command the highest prices which are unique in their development and resourcefulness. The man who achieves success is the man who can do something better than his neighbor. Last week a vaudeville artist received a large salary for a performance which did not occupy him more than one hour out of twenty-four. He made more money in a day than the employes of the theater in which he appeared would receive in six months, simply because the thing which he essayed to do was done better by him than by any one else in the world. In the amusement world he filled a long-felt want, and profited thereby, just as the men who invented the telephone were enabled to accumulate millions. People had lived for thousands of years without being able to communicate over long distances with each other. This fact did not lessen the advantage of such communication when it was made possible, and to-day the world would feel a distinct shock to its progress if all telephones were blotted out of existence.

The moral of all this is that the

commonplace plodder, who day by day wearily rounds out his treadmill experience, cannot hope to make substantial progress in the world. A man to be successful nowadays must literally fill a long felt want. He must supply something which the world wants. It may be a book, or an invention of his own brains in the direction of affairs, but it must be something out of the ordinary run. There can be no greater stimulus to ambition than the fact of the world's willingness to recognize and to practically appreciate the man who supplies its needs. It stirs him to activity, if he has any aspiration at all, and compels him to drink deep of the fountain of inspiration. He must keep his ears open to listen to the wants of the world; he must walk with wide-open eyes to discover the thing that is lacking; he must exercise his ingenuity to supply the desideratum. When he has successfully done all these things, he may be sure that he will be well repaid. The great majority of the people are waiting to take the things they need from the hands of those who have the ability to supply them.

Let us not, therefore, scoff at the man who fills a long-felt want. Experience shows that he thereby engages in a profitable undertaking.—(*Washington Post.*)

Trade-Marks in Cuba.

The unauthorized registration of their trade-marks in foreign countries is a difficulty with which American manufacturers have had, in several instances, to contend. It has been reported that when the "Uneeda" biscuit came out here, the name was cabled by a London cigar manufacturer visiting New York, and was registered in England by his firm to the detriment of the American originators of the trade-mark in question.

As American business with Cuba has been developed through the operation of the preferential treaty, the subject of trade-marks assumes considerable importance. During the control of Cuba by the United States, American patents and trade-marks could be registered there at a nominal expense, but since the island became independent, American manufacturers have been subject (like those of other foreign countries) to the old Spanish decree of 1884 and to a recent administrative decree of the Cuban Republic. Registration is obligatory for enforcing the ownership of a trade-mark, priority of application for registration deciding the question of such ownership. The registered owner of a trade-mark can take civil or criminal proceedings against infringers of the same.

Although United States trade-marks can be registered in Cuba for a renewable term of 15 years by depositing with the application a certified copy of the American registration, it is a question whether the Cuban registration will date from the time of the original application in the United States. The presumption is that an intervening registration by a Cuban applicant would not, according to existing law, be set aside by a later application to register an American trade-mark. Hence, American manufacturers are advised to lose no time in registering their trade-marks in Cuba.

Mr. Elmer J. Bliss, of the Regal Shoe Company, has called attention to the opportunity thus afforded to unscrupulous parties in Cuba, of registering valuable American trade-marks in their own name and controlling them for the Cuban market. He points out that as Cubans enjoy the right of registration of trade-marks here, it is to their interest to deal fairly with the United States in this matter.—*American Industries.*

Printing Devices.

We have become so accustomed to the annihilation of time by the modern newspaper, that we do not stop to think, when we receive the printed accounts of the results of a horse race, say, hundreds of miles away, within a few minutes after the victory is won, just how the news is placed before us. Of course, the telegraph plays an all important part in the equipment of journalism, but the swiftest transmission of news would be futile were it not for the advance of mechanical invention in the press room and composing room. There are presses capable of turning out 40,000 complete folded papers per hour. One New York newspaper has presses with a combined capacity of 380,000 copies per hour, and a day's output of a million papers is not uncommon with it.

An invention called the "fudge" has made possible the printing of news received almost at the moment of going to press. It is a small, curved brass box, into which lines of type are set and held by springs. This is clamped on the plate-cylinder of the press, so that the late news is printed, as in former days, directly from the type, not from plates cast from molds of the type, in the usual modern way.

A machine known as the autoplate has also greatly accelerated the speed with which the plates may be made, and has lessened the labor as well. It replaces three machines which cut, bevel and shave a plate after it has come from the casting box. As some newspapers use thousands of plates in a week, and as each operation means minutes in handling, this machine makes a very material reduction in the time needed to "dress" a press.

Devices for rapid addressing are already in use, and one is being perfected for mechanically wrapping the paper for mailing. Such a contrivance would greatly lessen the time lost in mailing, and permit the earlier delivery of papers to out-of-town subscribers.

But next to the telegraph, the greatest of time-savers is the type setting machine, which is now in all the large composing rooms. By the use of this contrivance, papers are enabled to go to press later, and news can be set up which otherwise could not possibly be handled in time.

New Rain Gauge.

A Munich inventor is responsible for a new form of rain gauge. The unsatisfactory character of the record made by the ordinary self-recording gauge, which does not show the details of rainfall sufficiently well, has led to the construction of a gauge from which the rainfall drops. Each drop falls on one end of a delicately balanced arm, which descends under the weight, closes a circuit, and thus records the fall of a single drop. So detailed is the record that the rainfall curve can be plotted on the basis of the number of drops which fall from the gauge in half a minute, and these curves show clearly that the ordinary shower is very variable in its intensity, these smaller variations not being shown on the usual rain gauge record. Weather observers are much interested in this invention, which is expected to throw a new light on the way in which rain falls.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy; twenty copies \$1.50.—Please give correct data in ordering.—Address,

THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

Issued March 28, 1905.

MECHANICAL PATENTS.

Continued from April number.

Gun. Gas actuated magazine. S. N. McClean
Gun. Gas operated. S. N. McClean
Gun. Portable recoil. J. Krone
Gun rear sight. H. A. von Kretschmar et al
Gun recoil controlling means. S. N. McClean
Gun training and elevating mechanism. J. F. Meigs et al
Gun. Trap. H. P. Boggs
Guns. Device for counteracting recoil. S. N. McClean
Guns. Means for controlling the recoil and muzzle blast of. S. N. McClean
Guns. Means for preventing recoil of. S. N. McClean
Hair pin. G. A. Henderson
Hammer. S. Springer
Hammer. Electric. L. Paulero
Hammer. Power. H. Dubes
Harness pad. G. E. Martin
Harrow. S. K. Stanley et al
Harrow attachment. J. A. Davis
Harvester. C. A. A. Rand
Harvester and husker. Corn. J. A. Stone
Harvester. Corn. A. G. Heisey
Hat fastener. J. A. Kemper
Hat fastener. S. MacDonald
Heel beveling machine. Spring. J. A. Mills
Hinge gate. Butt. S. W. Atkins
Hitching strap. C. P. Wing
Hoe. C. N. Choate
Hone. T. McGrail et al
Hook and eye. W. C. Williams et al
Hook and eye. F. L. Priest
Horse boot. G. W. Phillips et al
Hydraulic motor for presses. W. Ross
Ice cream freezer. M. Lichtentag
Inhaler. M. D. Good
Insect destroyer. Boll weevil or other. J. S. Doak et al
Intrenching implement and tent pin puller. Combined. S. D. Davis et al
Invalid litter. H. P. Camp
Journal box cover. H. C. Williamson et al
Journal box dust guard. J. S. Patten
Keel for ships or boats. Adjustable. C. Albrecht
Knife and intrenching tool. Combined. G. H. Powell
Ladder. P. Koopman
Ladder. C. M. Mailory
Lamp. Electric. G. P. McDonnell
Lamp. Electric arc. R. Scott
Lamp. Gas. J. Doerenbos
Lamp socket. Incandescent electric. G. C. Baillard
Lamp. Vapor. M. W. Pitner
Lantern. R. J. Kelley
Lantern globe. A. P. Storrs
Lantern. Reflecting. C. C. Balderston et al
Lasting machine. R. F. McFeely
Lath boring attachment. J. Peelle
Lead dithionate. Making. A. G. Betts
Leak stopping device. L. Jones
Leather polishing machine. W. H. Gerrity
Letter box indicator. J. L. Lister
Letter. Sign. J. C. Wands
Level. Ditching and terracing. E. A. Bostrom
Lifting jack. J. E. Shannon
Lime digester. L. E. Fishack
Linotype machine. C. Muehleisen
Linotype machine. 2 pats. J. R. Rogers
Linotype machine. P. T. Dodge
Linotype machine. C. L. Grohmann
Liquid cooling apparatus. C. Grohmann
Liquids. Device for filling valved receptacles with charged. P. P. Gorski
Loading machine. F. R. Kent
Loading tray. A. H. Emery
Lock. F. J. Vieweg
Lock. H. Coudyser
Locomotive reversing gears. Pneumatic actuating device for. F. Warther
Loom. Narrow ware. O. W. Schaum
Loom shuttle. A. Whitehead
Loom shuttle motion. W. F. Kintzing
Loom weft replenishing mechanism. E. D. Thayer
Lubricator. W. H. Pape
Mace. Policeman's. O. Liberman et al
Machine wrench. A. C. Anderson
Mail box. Rural delivery. W. Clement
Mail catcher. E. A. Buell
Mangle. C. R. Stake
Mantle heads or tops. Machine for tying up. S. Cohn
Match. reissue. B. Jacob
Matching device. C. W. Bray
Measure. Graduated. L. P. Lipps
Measuring and ruling device. Adjustable. S. N. Nutz
Mechanical motor. D. W. Axe
Metal shaping machine. W. Ross
Metal sheet matching device. C. W. Bray
Metals and alloys. Producing. H. S. Blackmore
Metals. Electrodepositing. E. D. Kendall
Metals. Purifying pig. J. B. Nau
Meter system. J. A. Tilden
Mold. J. McMullin
Molding machine. Sand. J. J. McClelland
Monkey wrench. J. Jarnberg
Motor winding. Three phase. E. F. W. Alexanderson
Mower or reaper. J. Gagne
Music leaf turner. L. J. Rose
Musical apparatus. Self playing. R. A. Gally
Musical instrument note sheet winding and controlling mechanism. G. H. Davis
Musical instruments. Valve guide for mechanical. F. C. White
Nailing machine. L. A. Casgrain
Necktie fastener. W. B. Smith
Nest. Hen's. G. H. Buckingham

Numbering machine. F. J. Martin
Nut lock. G. F. Robertson
Nut lock. reissue. M. P. Carpenter
Oil cup. G. A. Wood
Ore pulverizing apparatus. E. H. Benjamin
Ores. Reducing. D. R. Robertson
Packing case. Sportsman's. F. Wehmeier et al
Paint. G. W. Gesner
Palette. Artist's. M. V. Larkin
Paper folding and packaging machine. R. B. Friend
Paper &c., folding machinery. E. H. Cottrell
Paper making machine and process. R. Binns
Paper slack provider and winding mechanism. K. West
Pasting device. Wrapper. J. G. Kudren
Pedal action. R. Moe
Pencil. J. Makant
Photographic plate holder. F. A. Brownell
Pianissimo device. C. P. Blinn
Piano pedal action. E. Bornhoef
Pick. W. F. Gilooly
Pile driver. W. J. Lawler
Pipe bending machine. Corrugated. E. Zeh
Pipe covering. A. E. Roeyen
Pipe wrench. C. C. Chamberlin
Pistol. Repeating. C. P. Clement
Planing machine pressure roller. Wood. C. K. Orton
Planter. Potato. H. P. Baltzer et al
Plating. Metal. A. Schmidt
Pliers. Watchmaker's and jeweler's. B. E. Byrd
Plow. R. Jones
Plow. Reversible disk. E. Manes
Portable mold. J. T. Boner
Powder puff. N. R. Hull
Power transmitting mechanism. M. Hendrickson
Power transmitting mechanism. W. J. Bayner
Press. M. Mueller
Printing couple appliance. F. E. Kempf
Printing machine. J. A. Thomson
Printing. Photomechanical. J. W. Ippers
Printing press. E. N. Mills
Printing press beds. Spring controlling mechanism for. C. P. Cottrell
Printing press cylinder. G. K. Henderson
Printing press. Platen. F. Waite
Pulley keying device. D. G. Langlands
Pulley or wheel. L. S. Lachman
Pump. J. W. Park
Pump. J. R. Compton
Pump. reissue. A. H. Deis
Pump. Double rotary force. J. R. Norton
Pump. Oil. W. S. Sherman
Pump valve. O. Arendt et al
Puzzle. I. C. Scudder
Rail joint. E. G. Gralapp
Rail joint. G. T. Haygood
Rail joint. E. E. Harrison
Rail joint and chair. J. S. Webb
Rail lubricating device. R. Fallnicht
Rail splice bar. H. Oderdahl
Railway block signal apparatus. A. B. Kendall
Railway block signal system. A. Horstschaefer
Railway crossing structure. W. B. Cooke
Railway frog and guard rail. D. J. Swing
Railway frog and guard rail foot guard. M. Waters et al
Railway signal system. Electric. G. W. Pickard et al
Railway signaling system. Electric. J. D. Gordon
Railway spikes, &c. Means for fastening. G. G. Lakhovsky
Railway switch. F. Unbrock
Railway system and conduit. Electric. G. W. Olinger
Railway system. Electric. J. C. McDonald
Record device. C. L. Hutchison
Refrigerator. J. W. Mallett
Relay. Compound. S. D. Field
Remnant tube. C. E. Mitchem
Rheostat for starting and controlling electric motors. W. C. Yates
Rheostat. Starting. E. F. Dutton
Riveting machine. C. H. Fenton
Road smoother. J. Force
Rod holder. W. E. & C. A. Metzger
Rotary engine. T. S. Huntington
Rotary head. J. T. & C. C. Glazier
Rotary motor. J. M. Maxwell
Rotary steam engine. J. A. Ambroz
Saw. Inserted tooth. W. J. Cummings et al
Scaffold. C. J. Roy
Screw press. G. Gropp
Seed cleaner. Cotton. R. Benefield
Seeder and planter. O. P. Sanford
Septic matter purifying and sewage manipulating apparatus. F. P. Smith
Sewing machine cabinet head. A. Hackenbroch
Sewing machine waxing apparatus. H. Briggs
Shade stop attachment. F. L. Benedict
Shaft and plunger connection. W. C. Schoelkopf
Shafts. Sulky. R. Laass
Shears. A. E. Border
Shoe fastener. J. W. Barna et al
Shoulder brace and suspenders. R. B. Richmond
Shuttle box actuating mechanism. A. J. O'Reilly
Sight illuminator. R. R. Logan et al
Sign. Fence. C. F. Haas
Siphon. J. J. Powers
Skimmer. L. L. A. Cooper
Slat adjuster. I. L. Garside
Slicing meat, ham, sausage, &c. Machine for. A. Lutzmann
Smelting furnace. P. Healey
Smoke preventing device. Furnace. P. Eyermann
Smoking pipe attachment. I. N. Weitzel
Soap mill. J. N. Hinkle
Soy extracts. Apparatus for making. T. Suzuki
Speed indicator. S. P. Walsh
Speed varying mechanism. M. O. Reeves
Spinning spindle. H. Kleiy
Spinning, twisting, and winding machine. R. Dawes
Squeezer. R. B. Gilchrist
Stacker. Straw. E. J. Vraalstad

Staircase or the like. Traveling. E. L. Hocquart
Stamp affixing and canceling machine. D. Carter et al
Stapling machine. T. A. Briggs
Steam motive power. H. K. Hess
Steam trap. Balanced. F. A. Simonds
Steel trap. J. W. Parsons
Stereopticons, &c. Lens box for. A. C. Roebuck
Stocking supporter clasp. W. W. Palmer
Stoker. Mechanical. L. Roth
Stones. Coloring natural compact crystalline. C. Wultze
Stove cut off attachment. Gas. C. Bargamin
Subway structure. J. Simpson
Sugarcane juice extracting apparatus. J. Kigney
Switch. S. B. Stewart, Jr
Switch throwing device. C. J. Kingsolving, Jr
Table adjuster. C. A. Smith
Table locking device. Pedestal. E. Tyden
Tabulating attachment. W. J. Spiro
Talking board. I. B. Randall
Taper. L. P. Normandin
Taper gage. A. Kettinich
Teeth and dental plates. Connection for artificial. S. S. Bloom
Teeth, &c. Manufacture of artificial. F. A. J. Courmand
Teeth. Shade guide for artificial. G. H. Whiteley
Tooth mold. Artificial. G. H. Whiteley
Telegraph apparatus vibrator. Sound. A. Lind
Telegraphy. Wireless. G. Marconi
Telephone exchange apparatus. J. L. McQuarrie
Telephone system. A. C. Gilgen
Telescope. Sighting. H. A. von Kretschmar et al
Theater seat attachment. S. W. Van Nostran
Threshing machine. C. Sykora
Ticket holding and handling device. J. W. Lutz et al
Tide motor. G. M. Helvie
Time recorder. J. & A. Dey
Tire. J. F. Byers
Tire protector. N. Campbell
Tobacco hanger. J. H. Sylvester et al
Tool. Combined. W. W. Currier
Toy cigar for blowing smoke rings. N. J. Dilday
Toy. Jumping rope figure. O. T. Dougherty
Train. Observation. C. L. Hagen
Transmitting intelligence. C. D. Ehret
Transmitting intelligence. System of. C. D. Ehret
Transom operator. W. Eckstein
Trap. C. Schmitt
Trolley. J. L. Brownlee
Trolley. S. Kacso
Trolley wheel. S. Klambovski
Trolley wheel and holder. H. N. King
Trousers creaser. J. H. Bradley
Trousers stretcher. H. H. Ewing
Truck side frame. Car. W. P. Bettendorf
Tube expander. W. H. Kinney
Turbine. Steam. C. S. Drummond
Type casting machine squirt preventer. W. Nicholas
Type chase and furniture therefor. H. S. Folger
Type writer platen. C. H. Stuart
Type writing machine. L. S. Burridge
Type writing machine aligning device. J. B. Secor
Type writing machine type cleaning attachment. A. Hall
Universal joint. G. W. Toney
Valve. Fluid actuated. J. B. Rhodes
Valve. Gate. G. T. Luckett
Valve mechanism. Steam engine slide. F. E. Smith
Valve. Plug. R. W. Cadman
Valve. Reversing. J. A. Herrick
Valve. Self closing. R. F. Gillin
Vapor burner. 2 pats. H. J. Marks
Vault. Burial. F. G. Boyden
Vehicle body. S. R. Bailey
Vehicle controlling apparatus. Motor. D. Mason
Vehicle indicating apparatus. Motor. D. Mason
Vehicle. Snow or ice. C. B. Haldeman
Vending machine. T. Frantz
Vending machine. Coin controlled. J. Little
Vending machine. Multi. F. T. Conklin
Veneer cutting machine. C. R. Traxler
Veneer cutting machine stay log. C. R. Traxler
Ventilator. M. Miller, Jr
Vessels. Apparatus for marking sunken. F. W. Johnson
Vibrator. Fluid actuated. C. H. Richmond
Wagon. Dumping. C. J. Handel
Wagon rack. J. H. Price
Washing machine. A. L. Betzer
Wash protector. J. K. Howard
Water closet bowl connection or joint. E. L. Stallings
Water elevator and purifier. J. B. Sells
Water heater. W. L. Mersfelder
Water wheel regulator. J. W. Macfarlane
Weighing machine. A. G. Witte
Well casing packer and shoe. Gas or oil. A. P. McBride
Well wall anchor and packer. Gas or oil. A. P. McBride
Wharf or pier. S. G. Hinde
Wheel. J. Bevington
Wheel. E. Krebs
Whipping device. T. J. Foos
Winder. Bobbin. R. H. Legg
Winding apparatus. Hand operated. E. N. Naylor
Window. C. D. Tabor
Window. W. J. Heim
Window fastener for ventilation. L. C. Cannon et al
Wire stringer. W. H. Horner
Wood sizer. Machine for making corrugated. E. Wolf
Work table. M. F. Meagher
Wrench. O. B. Craft
Wrench. N. W. Athey
Yeast cells. Obtaining the contents of. W. Hess

DESIGNS

Fabric. Printed textile 4 pats. E. B. Vandergaw
Mirrors, brushes, or similar articles. Back for hand. M. T. Goldsmith
Pencil tip. Lead. B. B. Goldsmith

Issued April 4, 1905.

MECHANICAL PATENTS.

Adding and recording machine. C. B. Gartrell
Adding machine. H. Eberhardt
Adjustable and reclining chair. A. J. Nuss
Air brake system. A. C. Richards
Album or book and stand therefor. J. S. Desmarais
Ammunition wagon or limber. W. Mayer
Annealing furnace. J. Hughes
Annealing furnace. Non-oxidizing. C. F. Kenworthy
Asphalt cutting machine. H. Schumacher
Automobile or bicycle wheel. O. R. Van Doren
Awning. C. J. Truemper
Baling press. D. M. Bass
Banjo bridge. L. A. Callan
Basket. Hop picking. F. W. Craver
Bean picker. H. G. Hubbell
Bearing. H. M. Smith
Bearing hanger. Ball. W. S. Rogers
Beef press. Corned. R. C. Hieber
Beer. Manufacturing non-alcoholic. V. Lapp
Beet chopper. E. Bell
Belt. F. Mueller
Belt tightener. W. G. Gaum
Belt tightener. G. R. W. Lanning et al
Berry box. O. H. Schmalz
Binders. Locking mechanism for the operating devices of loose leaf. H. J. Moore
Boiler incrustation preventing device. F. Weimar
Boiler or like furnace. Steam. G. R. Hislop
Boilers. Combined safety attachment and flue cleaner for steam. J. W. Norton
Book. Poll tax receipt. M. P. Exline et al
Bootee. O. P. Burd
Bottle. R. G. Julien
Bottle holder. L. H. Keller
Bottle shipping case. R. I. Wright et al
Bottle stopper. C. Dorn
Bottle stopper extractor. C. F. Garimaldi
Bottle washing machine. J. Angeltti
Bottle washing machine. A. Forbes
Box. J. J. Polski
Box fastener. A. T. Kruse
Brake shoe. J. F. Morrison
Brake shoe. W. M. Simpson
Brick trimming tool. S. C. Campaigne
Briquet machine. H. E. Marsh
Brooch. Veil. G. D. Turner
Broom corn fiber. A. J. Middleton
Brush making machine. A. Vanderveld
Buckle. Cotton bale tie. J. B. Fleenor
Buckle. Cross line. H. J. Rath et al
Building block. C. J. W. Hayes
Button. Badge. G. H. Brooks
Cabinet. E. A. Carlson
Calculating machine. H. Goldmann
Calendar. J. Ball et al
Camera. Photographic. G. Hassell
Camera stand. E. A. Stetzer
Can body making machine. G. F. Leiger
Can testing apparatus. H. C. Black
Cantopping machine. H. C. Black
Canning machine. M. Foerg et al
Cane or umbrella attachment. F. Grey
Caoutchouc. Manufacture of a substitute for. H. Spatz
Car brake. Mining. J. C. Jones
Car door. Grain. C. L. Robbins
Car haul. L. J. Robb
Car safe. Sleeping. C. C. Dawson
Car safety guard. Street. C. A. Willard
Car wheel. Tram. G. T. Bond
Car with drop ends. Low side gondola. J. M. Hansen
Carving platter meat holder. H. G. Chamberlin
Casing spear. J. J. Brewster
Cash register. A. Mulszewski
Cash register. J. P. Cleal
Cash register. F. C. Osborn
Chair spring back. C. J. Travers
Chlorin. Treating and utilizing. E. C. Paramore
Churn dasher. S. C. Simons
Churn. Rotating or centrifugal. E. A. Nordlindh
Cigar cutter. J. T. Paterson
Cinder. Apparatus for spraying blast furnace. W. Lessing
Circuit closing and breaking device. W. J. Murdock
Clothes holding device. L. Ismer
Clutch. Magnetic. H. H. Cutler
Clutch mechanism. J. M. Joy
Clutch or speed accelerator. Magnetic. 3 pats. H. H. Cutler
Coke drawing machine. J. D. Buffum
Coking oven. J. M. Sullivan
Column support and sill fastener. Combination. D. F. Hutton
Compression lubricator. Automatic. 2 pats. D. B. Williams
Computing machine. Automatic. A. D. de Generes
Concrete beam protection. A. L. A. Himmelwright
Concrete block making apparatus. Hollow. W. G. Hughes
Concrete building block molding machine. W. L. Dow
Concrete steel columns. Form for constructing. L. F. Brayton
Concrete structure. E. S. Keefer
Condenser and leak coil. Combined. W. W. Massie
Conversation tube. A. W. Nicholls

Conveyer G. F. Zimmer
 Conveyer E. A. Hallam
 Conveying apparatus T. S. Miller
 Cop tube S. W. Wardwell
 Corn husking and shredding machine feed mechanism J. W. Paige
 Corn husking implement J. A. Wentz
 Corn husking machine J. W. Paige
 Corn picker and husker E. Haack
 Corset E. Savoye
 Couch A. F. Old et al
 Couch G. C. Hartshorn
 Crane, Gauntree W. R. Kaes
 Crib, Folding M. C. Collier
 Cultivator reissue A. H. Kopperud
 Currents, Means for rectifying alternating R. Siegfried
 Currycomb R. T. Gillespie
 Curtain and drapery support J. M. Spencer
 Curtain fixture B. F. Rice
 Curtain hanger J. J. Cochran
 Cuspidor lifter W. J. Enz
 Cut off, Water T. H. Parker
 Cutting stick G. Schwarz et al
 Cylinder ring, Self-adjusting M. J. Kilroy
 Dental engine attachment J. E. Morgan
 Dental floss holder C. M. Rawlins
 Denture, Artificial B. W. Fordyce
 Denture making apparatus G. P. Franklin
 Developing tray N. Cartmell
 Diaper support C. L. Christian
 Die for cutting contiguous fasteners R. B. Lewis
 Die mechanism for cutting contiguous fastener R. B. Lewis
 Dish cleaning table attachment A. R. Beal
 Disolay cabinet J. A. Douglass et al
 Display rack or holder P. Berolzheimer
 Display stand, Advancing shelf J. H. Williams et al
 Door check F. Stumpf
 Door closer and holder J. Jeton
 Door latching device, Safety exit G. E. Redden
 Door locking mechanism, Folding J. W. Jones
 Door opening or closing apparatus L. Ives
 Door stop P. J. Moran et al
 Door stop, Adjustable G. H. Wolf
 Door stop and holder, Combined D. H. Devereux
 Drawer, Knockdown F. O. Anderson
 Dress suit case H. A. Pike
 Drum light attachment G. F. Bryan
 Drum and cymbal beating or actuating contrivance G. W. Clements
 Dumb bell G. H. Shepherd
 Duplicating apparatus, Stencil 2 pats. A. B. Dick
 Dye, Blue red azo P. Julius et al
 Electric heater L. P. Brown et al
 Electric heater and manufacturing same M. C. Beebe
 Electric meter bearing D. de Lancey et al
 Electric motor control W. D. Stivers
 Electric motor control system A. C. Eastwood
 Electric motor controller T. E. Barnum
 Electric motor controlling apparatus L. G. Nilson
 Electric motor controlling system 2 pats. H. H. Cutler
 Electric motors, System of controlling one or more H. H. Cutler
 Electrical condenser P. H. Thomas
 Electrode for arc lamps and making same I. L. Roberts
 Electroplating apparatus L. Potthoff
 Elevator controlling mechanism T. Larsson
 Elevator gate W. N. Phillimore
 Elevator pilot valve, Hydraulic T. Larsson
 Elevator valve mechanism, Hydraulic T. Larsson
 Engine and boiler, Combined D. M. Small
 Envelop fastener E. J. Stevent
 Envelop Stamp retaining H. J. Stirn
 Exercising apparatus G. H. Pfund
 Exercising appliance, Electric W. Sutton et al
 Exercising device M. Duffner
 Extension table G. A. Brown
 Eyeletting machine J. W. Barna et al
 Feed box, Folding R. H. Goede
 Feeding device, Stock C. L. & H. P. Hanson
 Fence A. K. Keller
 Fence post F. Novess
 Fence post H. E. Percival
 Fence post L. W. Johnson
 Fence making machine A. K. Keller
 Fence, Woven wire M. D. Kilmer
 Fibers, Liberating and separating H. S. Blackmore
 File, Deposit S. C. Anderson
 Filter and mechanism for cleaning it L. Dion
 Filter, Gravity B. Hunt
 Fire alarm, Detonating M. A. Libbey
 Fire door E. Olmstrand
 Fire escape L. Grossmann
 Fire extinguisher W. W. Sykes
 Fire extinguishing system P. Evans
 Fire hose nozzle W. B. Ruben
 Fire screen and table, Combined V. P. Sollom
 Fires in buildings, Means for automatically extinguishing J. Fiddes
 Firemen, Inhaling compound for W. M. Mitchell
 Fireplace heater J. D. Bacon et al
 Fish hook case or holder H. J. Frost
 Fishing line and float H. A. Picken
 Fishing reel brake J. A. MacMahon
 Fishpoles, Device for extending lines from hollow C. E. Francisco
 Folding table J. A. Crandall
 Friction brake S. A. Moore
 Fruit picking machine A. C. Pitman
 Fruit pitting machine J. Caldwell
 Full stroke mechanism B. T. Seelie
 Furnace G. L. Fogler
 Furnace air feeding device M. E. Casey
 Galvanic battery D. L. Winters
 Game apparatus S. von Clauner et al
 Garment steaming and shaping device L. Earl et al
 Gas burner flash pilot H. S. Humphrey
 Gas burning appliance E. C. Jones
 Gas generator, Acetylene W. A. Wallace
 Gas generator valve R. Schenck
 Gas heater E. Laberge
 Gas producer C. Whitfield

Gas purifying apparatus T. Redman
 Gate J. Hogan
 Gear, Slip W. M. Neckerman
 Gear wheel, Sectional J. T. Duff
 Gin saw gummer E. A. Frautz
 Glass and cylinders, Machine for the manufacture of plate A. Bourneque
 Glass making machine, Sheet W. Alles
 Glass molding machine E. Miller
 Golf ball C. de Buren
 Golf ball F. A. Seiberling
 Golf club F. B. Corey et al
 Governor, Engine W. Glaser
 Grain bagging and weighing machine J. B. Williams
 Grinding mill H. L. Johnston
 Handle cap bearing L. B. Prahar
 Harness breeching T. G. Foster
 Harp P. E. Ekman
 Harrow, Disk C. Maul
 Harvester shield, Rice F. A. Ryther
 Hay carrier 2 pats. P. A. Myers
 Hay gatherer and stacker E. M. Orton
 Heat exchange J. H. Baude et al
 Hinge, Adjustable J. Luppino
 Hog ringing implement J. Gould, Sr
 Horseshoe W. Hill
 Hose supporter R. Gorton
 Illuminating device C. F. Alline
 Incubating method H. W. Axford
 Incubator A. A. Linebaugh et al
 Induction coil C. Adams-Randall
 Ingots, Perfecting cast steel R. W. Hunt
 Insect destroyer I. S. Moore et al
 Insulator, Electric railway conductor F. D. Ward et al
 Insulator, Multiple hood L. Steinberger
 Irrigating flumes, Apparatus for constructing G. T. McIntyre
 Jar covers, Utensil for truing and re-forming the metallic flanges of fruit J. M. Huntley
 Jar top remover W. T. Loofbourrow
 Keyboard M. H. Odell
 Kitchen, Cabinet C. F. Parker
 Kneading machine, Dough L. Durand
 Knitting machine, Circular H. R. Campbell et al
 Labeling machine H. Haulick et al
 Lacing stud, Shoe A. P. Gulliver
 Ladder B. L. Merrill
 Lamp bodies, Construction of R. Wallwork
 Lamp glowers, Apparatus for the manufacture of F. M. F. Cazin
 Latch R. Nussbeck
 Lead, Treating metallic H. E. Miller
 Level, Spirit L. M. Curry
 Lifting jack T. S. Patterson
 Lifting jack E. Wustner
 Lifting jack T. Argo
 Liquid separator, Centrifugal B. Ljungstrom
 Logging car standard C. H. Allen
 Loom, Damask Jacquard F. A. Sterner
 Loom for making pile fabrics J. T. Cyr
 Lubricator J. Hanson
 Lubricator R. J. Flinn
 Machine tables, Means for preventing tipping of G. A. Owl, Jr
 Mail bag deliverer N. K. Rowman
 Mail conveying apparatus C. C. Farmer et al
 Mailing tube J. R. Keller
 Manure loading machine G. F. Koenig
 Mashing machine W. Seidel
 Masse cuite, Preparing H. Roy
 Matches, Making J. H. Christensen
 Matting, Flexible A. S. Burnell
 Matting or fabric, Flexible A. S. Burnell
 Measure L. P. Steele
 Meat hanger M. P. Burt
 Mechanical movement C. E. Ragan
 Mercerizing machine H. W. Butterworth
 Meter cover and means for securing same W. H. Browne
 Milk containing cream, Obtaining concentrated C. H. Campbell
 Mirror frame L. B. Prahar
 Miter cutting machine R. Wales
 Miter or bevel joints, Cutting material for forming R. Wales
 Molding machine I. L. Landis
 Mooring machine F. Hayes et al
 Mop or brush holder J. C. Look
 Motion transforming apparatus P. E. M. Bastion
 Motor circuit controlling device G. W. Gilmore
 Motor control system and apparatus H. H. Cutler
 Motor controlling switch F. Mackintosh
 Motor, Varying the speed of the load driven by an alternating current H. H. Cutler
 Needle threader W. J. Kendig
 Nest, Hen's A. L. Stout
 Nippers or cutting pliers P. Broadbent
 Nut lock A. A. Miller
 Nut lock W. B. McCullough
 Nut lock J. D. Reed
 Nut, Locking A. V. Bryce
 Ore crusher A. C. Calkins
 Ore separator and concentrator W. F. Stein
 Ore, Treating E. Kelly et al
 Oven, Baker's B. Ycre
 Overlay table J. F. Johnson
 Packing case, Sheet metal A. T. Kruse
 Padlock J. H. Morehead
 Pail, Sanitary milk L. Barnabas
 Paint L. A. Drexler
 Paper cutting machine T. C. Dexter
 Paper fastener J. S. Hines
 Paper holder G. Laube
 Paper, Self developing sensitive J. E. Thornton et al
 Paving block, Composite A. F. Shuman
 Photographic plate or film for daylight development and fixing J. E. Thornton et al
 Photographs, Transparent paper paper strip-ping film for J. E. Thornton et al
 Piano action C. W. Brewer
 Piano chair M. C. Carrick
 Picture exhibitor, Moving J. Roeyer et al
 Pictures, Producing catalyzing O. Gros et al
 Piling M. R. Vanderkloot
 Pipe coupling J. C. Phelan
 Pipe coupling J. N. Goodall
 Pistol, Air S. Daniels
 Pitman rod connection J. L. Scott
 Pivot G. Merritt
 Pivot, Spring support H. M. Smith
 Plant shipping package, Potted H. G. Chamberlin
 Planter, Corn R. V. Barry
 Planting machine F. G. Green

Plow, Disk C. R. Davis
 Plow, Gang F. G. Ray
 Plow, Garden E. C. Davis
 Plow point H. N. Berry
 Pneumatic jack C. N. Coon
 Postal and commercial reply card W. Goodman
 Pouch transferring means J. Rombach
 Power brake L. Pfingst
 Power brake, Mechanical L. Pfingst
 Power transmission H. H. Cutler
 Power transmitting apparatus, Alternating current 2 pats. H. H. Cutler
 Pressure regulator P. Keller et al
 Print washing and drying apparatus Blue C. F. Pease
 Printing, Multicolor duplex H. F. Bechman
 Printing press S. G. Goss
 Printing press H. F. Bechman
 Pruning implement R. J. Meyer
 Pruning implement J. G. Hunt
 Pulley F. M. Gunby et al
 Pulley, Lubricated G. W. King et al
 Pump W. U. Griffiths
 Pump A. E. Kepner
 Pump, Duplex steam C. A. Snider
 Pump, Rotary turbine E. A. Smith
 Pump, Turbine J. Richards
 Pumps, Pull wheel for operating well J. D. Anderson
 Pumping apparatus G. D. McElphatrick
 Racking apparatus D. Beebe
 Rail joint M. Stuart
 Rail joint A. C. Fletcher
 Railway frog W. F. Carr
 Railway indicator, Electric P. I. Chandevsson
 Railway rail holder G. M. Ewins
 Railway safety appliance J. L. Wall
 Railway signal system W. G. Roome
 Railway signal system W. E. Schieble
 Railway signaling system J. Lemire
 Railway switch G. W. Duke
 Railway switch M. Waters et al
 Railway switch, Automatic street W. S. Snyder et al
 Railway switch operating device, Street E. G. Howe
 Railway vehicle coupling L. Brandau
 Railway tie J. S. Alexander
 Railway tie I. Copeland
 Rake ratchet mechanisms, Release device for horse E. H. Kimbark
 Receptacle closure C. Schroeder
 Recharging device J. V. Wells
 Reeding machine J. Pernot et al
 Regenerative furnace, Siemens A. Kurzwernhart
 Reinforce J. F. Francia
 Relay, Signal F. K. Vreeland
 Remedy applying device D. A. Stapler
 Riveting device F. Sheppard
 Roasting furnace W. R. Ingalls
 Roasting furnace C. H. Renath et al
 Rotary press T. S. Grimes
 Roundabout W. Hosse et al
 Sad iron heater C. M. Best
 Sad iron, Self heating M. Hoetzer
 Saddle, Riding A. Lappan
 Sash balance and fastener W. H. Gardner
 Saw handle D. Worden
 Sawmill set works C. A. Wilson
 Scaffold, Roof S. C. Johnson
 Scale, Automatic weighing C. L. Bond
 Scale, Weighing E. T. Bates
 Screw machine C. R. Gabriel
 Sew F. W. Brooks
 Sewing machine thread controlling mechanism H. H. Cummings
 Sewing machine thread waxing device F. W. Merrick
 Shaving cabinet F. P. Linsley
 Shear gage J. Johnson
 Shell digger W. McCoy
 Shingle gage, Adjustable A. Anderson
 Shoe & c, fastening J. J. Boynton
 Shoe polisher H. E. Gartrell
 Shoe tree W. C. Benkert
 Sign N. R. Wood
 Sign F. F. Burdick
 Sign F. W. Donnelly et al
 Signal system, Safety F. Dornberger et al
 Signaling screen G. Villani
 Signaling system, Selective 2 pats. R. C. Deuben
 Sink, Domestic J. H. Doyle
 Smoke house E. H. Sawyer, Jr. et al
 Smoke and making same H. Giessler et al
 Soap, Making neutral A. P. Horn
 Sofa and table, Convertible N. B. Stone
 Sound reproducing machine record W. S. Darby
 Spectacle attachment J. P. Jackson
 Speculum F. McGinnis
 Speed accelerator, Electric H. H. Cutler
 Spinning cop tube H. Snence
 Spinning frame thread guide C. A. Pierce
 Spool stand H. E. Leeman
 Spring wheel, Yielding L. Marchand
 Stair, Winding C. A. de Witt
 Stamp A. C. Fletcher
 Stamp mill A. McCombie
 Stanchion H. L. Ferris
 Stand S. A. Duncan
 Steam exhaust head J. P. Zenger
 Steam generator C. E. Hastings
 Steam separator J. G. Duck
 Steam shovel G. W. King et al
 Steel R. A. Hadfield
 Stone making machine, Artificial F. Brichia
 Stone sawing machine O. W. Alston
 Stovepipe, flue, and smoke stack protector J. H. Foster
 Strain L. Steinberger
 Subway construction I. W. Reno
 Sugar granulator K. Gruenke et al
 Surface finishing machine G. N. Parker
 Surface trimming machine, Parallel H. C. Hansen
 Surgical appliance A. Breslin et al
 Suspenders F. E. Colburn et al
 Switch rod roller stand L. Zamboni
 Synchronous motor with clutch H. H. Cutler
 Syringe F. Wackenhuth
 Talking machine attachment H. H. Kuhn
 Tea, coffee, or other infusions, Device for making C. McKenzie
 Telephone attachment L. A. Bumgardner
 Telephone memorandum attachment J. W. Currier
 Telephone receiver W. J. Murdock

Telephone receiver holder K. C. Seaman
 Telephone transmitter W. Kaikling
 Telephonic apparatus A. Graham
 Theater appliance A. M. Anderson
 Thermo electric couple A. L. Marsh
 Thermometer case, Clinical O. G. Bell et al
 Threshing machine J. D. Little
 Tilting gate H. Ahlrichs
 Tin plating apparatus F. L. Young
 Tire bolt wrench J. R. Moore
 Tire, Cushion W. S. McNamara
 Tire, Pneumatic I. Tennant
 Tire shoe setter R. Threlfall
 Tool, & c, Hand directed J. K. Stewart
 Tool handles, & c, Securing A. W. Cochran
 Tool holder and case for scissors, shears, pliers, & c F. Gutmann
 Tool safety device, Machine C. Wenigmann
 Toy E. Terry
 Toy bank W. J. Somerville
 Transformer receptacle or case J. H. Zimmermann
 Tray support E. C. Morgan et al
 Triangle clasp M. L. Rothschild
 Trolley pole controller, Automatic M. O. Dolson
 Trousers stretcher M. R. White
 Truck brake, Railway W. Dalton
 Truck, Cast steel car A. Lipschutz
 Trumpet or megaphone, Folding C. M. Zellers
 Tube coupling C. L. Mann
 Tubes, Attaching flanges to W. W. Doolittle
 Type casting and composing machine J. Pinel
 Type writing machine G. R. Young
 Type writing machine C. H. Sheppard
 Type writing machine tabulating device J. R. Sacer
 Umbrella frame T. Wallace
 Umbrella support H. Rowlett
 Vaccine case and holder E. M. Houghton
 Valve J. O'Heara
 Valve F. H. Crabtree et al
 Valve, Emergency throttle L. Neumann
 Valve gear W. R. Dow
 Valve, Retaining F. M. Herr
 Valve, Safety F. Schreidt
 Vapor burner, Incandescent W. S. Onieley
 Vehicle, Electrogasoline L. G. Nilson
 Vehicle, Motor J. F. Duryea
 Vehicle operating system, Electric H. H. Cutler
 Vehicle steering wheel, Motor F. J. Long
 Vehicle wheel J. F. Middleton
 Velocipede J. F. Remington
 Vending machine J. Mohr et al
 Vending machine T. R. Erwin et al
 Veneer cutting machine H. F. Grimesley
 Vise M. F. Hudson et al
 Wagon body J. B. Tremaine
 Wagon spring W. Webber
 Wall construction W. L. Marchand
 Wall construction, Building block W. Porten
 Water level controller R. I. Flinn
 Water purifying apparatus J. C. W. Greth
 Water tower, Extensible H. Sekowsky
 Water wheel, Turbine C. O. Anthony
 Weigher, Automatic C. Bradford
 Well apparatus M. E. Layne
 Wheels, Mechanism for preventing side slipping of pneumatic tired A. J. Greenmann
 Whiffletree hook L. C. Wendt
 Windmill O. W. Kenworthy
 Windmill H. C. Burnett
 Window A. Konecni
 Window screen and ventilator J. F. Tisch
 Wire stretcher C. F. Hofeldt
 Wire tying dies, Intersecting J. I. Morse
 Wire working tool W. R. Montgomery et al
 Wrench M. F. Hudson

DESIGNS.

Fabric, Printed textile E. B. Vandergaw
 Glass vessel W. R. Schaffer
 Hook, Coat and hat C. F. Nuezel
 Spoon E. Taylor
 Spoons, forks, or similar articles, Handle for E. E. Codman

Issued April 11, 1905.

MECHANICAL PATENTS.

Adding machine A. J. Postons
 Advertising device W. B. Hopkins
 Air brake A. H. Gertz et al
 Air compressor, Hydraulic W. G. Cox
 Air ship E. F. Wood
 Anchor J. W. Witmer
 Animal trap T. Rumann
 Armor plate F. G. White
 Automobile E. T. McKaig
 Awning W. L. Rundy
 Axle box, Car 2 pats. W. F. Richards
 Axle lubricator J. Aden
 Bag fastening P. Rindisch
 Bag frame A. F. Fuller
 Bag or the like O. Greenbaum
 Baling press W. S. Bradshaw
 Baling press E. H. Taylor
 Baling press D. E. Darnell
 Baling press W. Kruse et al
 Baling press feeder and packer L. Trabue
 Barrel, Knockdown G. Christopher
 Basin W. E. Copithorn
 Batteries, Means for controlling the charging of storage R. N. Chamberlain
 Beating engine J. E. Warren
 Redstead Invalid W. C. Feely
 Bicycles, & c, Resilient handle bar for M. Thierfelder
 Ridge block J. Hickler
 Blanket pin S. Galloway
 Blinder E. Dietrich
 Blower, Steam jet C. T. Coe
 Boiler fire tube, Steam P. H. Seery
 Boiler headers, Apparatus for making serpentine R. A. Barrett
 Roll-weevil exterminator A. B. Carter
 Bookcase, Knockdown sectional H. M. Amsden
 Book hand-rest, Note C. Arnold
 Bottle T. W. Russell
 Bottle, Non-refillable G. T. Kenly
 Bottle stopper, Water M. C. Schweinert et al
 Bottle storing case I. I. Koons
 Bottle washing machine C. W. Desobry

Box making machine..... W. Corkhill
 Brake..... F. Davignon
 Brake mechanism..... N. T. Harrington
 Brake shoe..... F. P. Collier
 Brake shoes, Making..... J. D. Gallagher
 Brake spindle and ratchet handle, Compound geared..... L. Püngst
 Brake system, Fluid pressure..... M. W. Hibbard
 Bread preserving device..... W. Biber
 Brick machine..... D. J. C. Arnold
 Brick machine attachment..... W. C. Burgum
 Brush and connection, Fountain..... A. W. Nicholls
 Brush cleaner, Hair..... F. Martucci
 Brush, Fountain..... P. H. Clingan
 Brush or broom moistener..... W. A. Fuller
 Buckle, Trace..... W. L. Walton
 Building block..... W. J. Faulkner
 Building block..... J. H. Jones
 Building blocks, Manufacturing..... D. W. Lloyd
 Bulkhead door control..... L. A. Hawkins
 Bundling apparatus..... J. H. Irving
 Burglar alarm..... C. O. Miller
 Button, Campaign..... J. L. Bieder
 Can cover..... C. A. Crane
 Canning and cooking apparatus..... J. C. Garner
 Cane and stool, Convertible..... S. C. Garden
 Cane fabric, Machine for inserting diagonal strands in woven..... F. H. Janson
 Cane, Macerating sugar..... M. Lorenz
 Cane mills, Intermediate apron conveyor for sugar..... M. Lorenz
 Cap..... H. Seide
 Capsule cutter..... E. Happe
 Car door..... J. W. Hawn
 Car door lock..... T. Drakes
 Car, Mine water..... W. J. Richards
 Car motor, Hand..... J. T. H. Drake
 Car register protector, Street..... F. Paduvert
 Car, Tank..... P. P. Studevant
 Cars or other vehicles, Ventilating device for tram..... E. A. Stanley et al
 Carbon articles, Heating..... F. J. Tone
 Carburetor, Rotary..... D. B. Young
 Cards, Playing..... W. H. Higgins
 Casing head..... C. C. Poole
 Casting apparatus..... F. Cowden
 Cement mixer..... C. Brent
 Cement tanks, Apparatus for forming..... J. T. Donahoo
 Chain link, Permeable..... J. W. Hyatt
 Check controlled apparatus..... W. B. Wheeler
 Chimney and lining therefor..... J. M. Bragg
 Chuck, Spindle turning machine..... A. Thorsby
 Churn..... H. H. & S. L. Hunter
 Churn power..... M. Grimm
 Cigar rolling table and wrapper cutter..... I. Liberman
 Cigarette packages, Machine for making up..... Y. Lazaga
 Clarinet mouthpiece..... F. Starke
 Clock, Electric..... M. Fischer
 Clutch for motor cars, &c. Friction..... L. Girardot
 Clutch, Friction..... A. P. Brush
 Coffee bean polishing and finishing machine..... F. D. Barros
 Coffee pot strainer and holder combined..... W. A. Wasserman
 Collapsible gate..... A. Clarke
 Combing machine..... A. Wenning et al
 Concrete block mold machine..... E. Keagy
 Conveyor conduit elbow..... H. J. Podlesak
 Conveyor, Pneumatic..... J. M. Akers
 Cop or cord package..... S. W. Wardwell
 Cot, Folding..... J. J. Mackie
 Cotton chopper..... J. M. Sutton
 Cotton picker..... J. Summerfield
 Cotton picker's wagon..... G. G. Richards
 Coupling..... C. L. Hockney et al
 Cover for vessels, Protecting and ventilating..... F. Kregczy
 Crate, Banana..... H. Sexton
 Crate, Folding or knockdown..... C. Hoskins
 Crutch..... A. L. Smith
 Cultivator, Straddle row..... W. S. Barton
 Curling iron..... J. Oppenheimer
 Current machine, Monophase and polyphase alternating..... M. von Dolivo-Dobrowsky
 Current motor, Direct..... J. S. Anthony
 Current motor, Alternating..... M. Milch
 Current series motor, Alternating..... M. C. A. Latour
 Current transforming means, Direct..... O. O. Kruh
 Current transforming means, Direct..... C. P. Steinmetz
 Currycomb..... W. H. Hackett et al
 Curtain and shade fixture..... C. A. Rought
 Cupidator..... J. Johnson
 Cycle support, Motor..... J. J. Bourcart
 Dam for irrigating ditches..... G. H. Duke
 Dampening machine..... C. W. Currier et al
 Deposition tank..... I. E. Lewis et al
 Door fastening device, Grain..... J. J. Hahn
 Door lock and check, Combined portable..... R. M. McMahon
 Door, screen, or curtain..... G. J. Record
 Dough feeding mechanism..... A. W. Copland
 Dough for making pie crusts, Spreading..... J. H. Burns
 Dough forming machine..... 2 pats. C. F. Dietz
 Dough rolling or spreading apparatus..... J. H. Burns
 Dredger, Turning shovel..... A. Bode et al
 Dredgers, &c. Spud grip for..... J. W. Hollenbeck
 Drill bit, Rock..... S. B. Clark
 Drum or barrel head cutter..... J. L. & T. C. Sheppard
 Drying vegetable, mineral, animal, and compound substances..... E. Gathmann
 Dye and making same, Claret red mordant..... A. L. Laska
 Dyeing machine, Skein..... W. H. Fletcher
 Dynamo..... E. B. Jacobson
 Egg carrier..... G. Finn et al
 Egg case partition, Removable..... F. W. Meyer
 Electric apparatus protective device..... L. Wilson
 Electric conduit terminal..... W. J. Miles et al
 Electric currents, Variable resistance or conductor for..... W. H. Fahrney
 Electric machine, Dynamo..... T. B. Hatch
 Electric machine, Single phase dynamo..... M. C. A. Latour
 Electric motor system..... C. P. Steinmetz

Electric motor, Continuous current..... H. Pecheur
 Electric recording instrument..... D. J. Steele et al
 Electric resistance..... H. W. Leonard
 Electric time relay switch..... W. W. Lackie et al
 Electric time switch..... R. D. Jones
 Electric wire conduits, Rosette or receptacle for..... G. A. Lutz
 Electrical distribution system..... W. A. Turbayne
 Electricity meter..... F. Lux
 Electrolytic method..... A. S. Ramage
 Elevator locking mechanism..... J. S. Muckle
 Elevator safety device..... F. B. Austin
 Engine..... C. R. McGahey
 Engine sparking igniting device, Hydrocarbon..... J. W. Packard
 Engine speed controlling means, Steam..... J. H. Clark
 Engine starter, Gas..... R. A. Mitchell et al
 Excavating trenches, &c. Apparatus for..... W. Heffron
 Fabric trimming and sewing machine..... F. Neveux
 Facing block..... A. E. Buell
 Feed regulator, Automatic..... H. J. Averbek
 Feeder, Boiler compound..... J. F. McCanna
 Fence post..... L. K. Bush
 Fence post, Steel..... H. F. J. Sieverkropp
 Fence weaving machine, Wire..... G. W. Whittington
 Fencing tie, Wire..... S. S. Withington
 Fire alarm apparatus, Electrical..... J. P. Robertson
 Firearm lock..... L. Cobb
 Firearm, Magazine..... W. B. Atkinson
 Fishing pole and reel..... F. Schreidt
 Fishing reel, Automatic..... J. H. Van Horn
 Floor and ceiling plate..... J. W. Carleton
 Flue or tube cutter..... R. T. Miller
 Fluid delivery apparatus..... R. L. Doran
 Flushing apparatus..... H. W. Gardner
 Foot warmer..... C. H. Whitaker
 Frequency changer..... O. O. Kruh
 Fruit gathering device..... E. Tatum
 Fruit picker..... F. Fisher, Jr.
 Fumigator and insect destroyer..... J. A. Frazar
 Furnace door..... E. E. Slick
 Furnace hearths, Means for protecting blast..... C. E. Dinkey et al
 Furnaces, Reversing valve for regenerative..... J. Reuleaux
 Game apparatus..... E. Fahl
 Game, Ball-and-bat..... E. Rosenthal
 Garment supporter..... H. E. Crandall
 Gas burner..... W. McLaughlin
 Gas burner..... F. M. Ashley
 Gas furnace..... J. C. Swindell
 Gas lighting device..... A. F. Williams
 Gas retort stand pipe..... J. H. Taussig
 Gas safety valve mechanism, Automatic..... E. Leadbeater
 Gate..... C. W. Van de Walker et al
 Gate operating mechanism..... J. E. Stirton
 Gates, Variable counterpoise for..... J. Hawkesworth et al
 Gear, Transmission..... G. R. Albaugh
 Gear, Variable speed..... F. W. Schroeder
 Gearing..... S. H. Hanson
 Gearing, Compensating..... E. C. Doolittle
 Gearing, Variable speed..... W. C. Conant
 Glass molding machine..... E. Miller
 Glass strips, Splitting longitudinally scored..... P. Semmer
 Gooseneck connection..... A. W. Nicholls
 Governing device..... R. B. McGowan
 Grading implement..... R. S. Sheldon
 Grain conditioner..... C. E. Oliver
 Grain spout..... A. W. Hamler
 Grinding and polishing wheel hood..... H. N. Middleton
 Gun carriage, Recoil..... A. H. Emery
 Guns, Mounting and operating..... A. H. Emery
 Hair drying comb..... T. P. Cheevers
 Hammer attachment, Drop..... R. F. Massa
 Hammer, Power..... J. Hemrich et al
 Harrow..... D. Smith et al
 Harrow..... O. Tower
 Harrow and cultivator..... J. A. Beard, Sr.
 Harvester and husker, Corn..... E. Hollis
 Harvester attachment, Corn..... J. Wilcox
 Harvester, Beet..... J. Beal
 Hat and coat locker..... W. E. Arbingast
 Hat frame forming device..... E. A. Howe
 Hats, Portable holder for ladies..... M. S. Hellman
 Hay press..... H. M. Tallman
 Headlight, Dash..... F. W. Dressel
 Heat storage box..... C. N. Rounselle
 Heating systems, &c. Drain attachment for steam..... R. L. Gifford et al
 Heel, Boot or shoe..... J. O'Meara
 Heel, Detachable..... F. B. Moss
 Heel plate, Felt boot..... D. Smith
 Hide or leather working machine..... G. W. Baker
 Hinge cutting machine..... G. B. Taylor
 Hoisting apparatus..... J. Spelman
 Hoisting machine, Automatic safety switch for..... O. S. Hertzog
 Honey extractor..... F. G. Marbach
 Horse detacher..... D. C. Bruner
 Horses, Device for the breaking in of..... H. Schuler
 Horseshoe..... E. A. Hennessy et al
 Horseshoe, Metal..... C. Hart
 Hydraulic coupling..... J. J. Dehant
 Incandescent lighting fixture..... L. R. Hopton
 Indexing, Book..... R. C. Pohl
 Injector..... F. W. Kremer et al
 Inking device for numbering or marking machines, &c..... F. W. Merrick
 Inkstand..... E. Davis
 Insulator, Telegraph or telephone wire..... R. J. McDaniel et al
 Iron from ore-separating tanks, Means for recovering magnetic..... E. S. Bennett
 Japanning small articles, Machine for..... T. A. Perrins
 Juice extracting machine..... J. W. Hyatt
 Juice extracting machine link and chain..... J. W. Hyatt
 Keyhole guard..... R. L. Robeson
 Knee rest or support..... E. C. Bispham
 Knitting machine..... J. W. Adams
 Knitting machine stop motion..... G. W. Ruth
 Knockdown box or crate..... J. R. Thomas
 Ladder handle forming machine..... J. S. Stevenson
 Lamp air baffler..... T. S. Leese
 Lamp, Alcohol..... S. Sternau et al

Lamp, Electric arc..... B. Jackisch
 Lamp, Gas..... J. & G. G. Doorenbos
 Lamps, Automatic safety extinguisher adapted to single and duplex burners for oil..... W. H. O'Keefe
 Lantern pinion..... E. W. Horn
 Laundry dampening tool..... H. M. Forbes
 Lawn trimmer..... J. H. E. Peters
 Leg, Artificial..... C. B. Winn
 Lintel construction..... J. Kahn
 Locomotive fire box..... C. Vanderbilt
 Log turning device..... O. D. Simmons
 Loom protecting mechanism controller..... J. Robinson
 Loom shedding motion..... P. Dietz
 Loom take up mechanism..... R. Crompton et al
 Lorry or dumping car..... C. H. Wellman et al
 Lubricator..... C. Callahan
 Lubricator..... E. Denegre
 Marker and punch, Interchangeable..... E. J. Hansen
 Match deliverer, lighter, and cigar cutter, Combined..... P. La Belle
 Mattress, Pneumatic..... R. B. Wiltse
 Mattresses, &c. Stay for pneumatic F. Webb
 Mechanical movement for controlling threading dies..... F. H. Easby
 Metallic leaf, Machine for forming package rolls of..... W. H. Coe
 Milk, Condensed..... S. R. Kennedy
 Milk cooler..... A. W. Lichtfeld
 Mine curtain raiser..... G. W. Manlove
 Miner's dumping cage..... F. C. Kerst
 Mirror support, Adjustable..... J. Banderob
 Miter box..... H. F. Stuebe
 Molding machine..... E. D. Misner
 Molding machine..... A. Choiniere
 Molding machine..... D. W. Lloyd
 Motors, Operating alternating current..... W. A. Layman
 Movement cure apparatus..... M. E. Gibson
 Music leaf turner..... B. Burke
 Musical instrument, Stringed..... F. X. Audet
 Nail feeding mechanism..... J. L. Perkins
 Nail holder..... J. E. Plank
 Napping machine..... H. S. Greene
 Nut lock..... T. B. & M. F. Earhart
 Oil burner..... C. G. Kipling et al
 Opera chair..... A. Lazarus
 Ophthalmoscope..... H. L. De Zeng
 Ore concentrator..... P. H. Craven
 Ore roasting furnace..... A. C. Johnson
 Ores or compounds preparatory to smelting, Treating sulfid..... T. Huntington et al
 Organ, Reed..... D. Schustek
 Oven deflector..... J. F. Bixler
 Packing, Metallic..... W. H. Law
 Packing washer..... C. G. Ette
 Falette and color dish, Combined artist's..... R. W. Semple
 Paper machine..... K. E. Rogers
 Partition construction..... R. Markgraf
 Pasting box..... H. G. La Sor
 Pen, Fountain..... S. H. Hodges
 Pen, Self filling fountain..... J. T. Davison
 Pencil sharpener..... E. Woodbury
 Pendulum mill..... J. Wustenhofer
 Phase rotation indicator..... R. F. Schuchardt
 Photographic plates or the like in open daylight, Developing..... J. N. Ludwig
 Piano actions, Bracket for grand..... E. Bornhoft
 Piano, &c., back..... J. Breckwoldt
 Pianos, Coin controller actuating mechanism for autopneumatic..... A. J. Hobart
 Picture exhibiting apparatus..... R. Cohen
 Picture hook..... B. Lehman
 Pie making machine..... J. C. Hutchison
 Pipe connection, Sewer and soil..... W. F. J. Lutz
 Pipe or hose coupling..... W. J. Williams
 Pipe or like joint..... F. W. Buhne
 Pipe union..... J. Bropson
 Pipe wrench..... A. E. Powell
 Plane..... E. A. & A. F. Schade
 Plow..... A. G. Perry
 Plows, Adjustable scraper for rotary disk..... W. O. Wimer
 Potato digger..... M. Altstock
 Powder, Means for manufacturing multiperforated bodies of smokeless..... H. Maxim
 Press..... H. O. Latham
 Press valve operating mechanism..... J. M. Stuart
 Printing, Color..... M. A. McKee
 Printing machine offset mechanism..... H. M. Barber
 Printing machine, Stencil..... C. L. Burdick
 Printing of calendars, cash and ticket blocks, &c. Machine for the..... H. Stamm
 Printing press..... J. E. Caps
 Propulsion of ships, Apparatus for..... W. T. Donnelly
 Pulley Sash..... P. Dosch
 Pulley, Self lubricating..... S. W. Wardwell
 Pulley, Sheet metal sash..... P. Dosch
 Pump..... J. Scholl
 Pump..... D. M. Watson
 Pump..... F. R. Wilson et al
 Pump..... W. M. Price
 Pump, Centrifugal..... E. L. Smith et al
 Pump, Centrifugal..... E. G. Harris
 Pump, Current operated..... J. D. Dawson et al
 Pump governing device..... R. B. McGowan
 Pump, Oil..... F. J. Young
 Pumping jack, Oil well..... R. G. Strother
 Punch..... W. Ross
 Punch cutting machine..... J. W. Lewis
 Punching machine..... F. J. Nutting
 Punching machine..... J. A. Groebli
 Punching machine, Multiple..... E. A. Stickney
 Puzzle..... J. D. Midson
 Quilting frame..... C. Carter
 Radiator..... J. F. Flaherty
 Radio active substances, Instrument for rendering visible the luminous effects produced by..... F. H. Glew
 Rag cutter mechanism..... C. W. Griffin
 Rail joint..... J. T. Qualk
 Rails, Compound hinge for depressible..... C. J. Diebold
 Railway bumping post..... B. Haskell
 Railway carriage coupling, Automatic..... J. Willison
 Railway collisions, Apparatus for preventing..... H. Gerstmann
 Railway construction..... C. S. Seitz
 Railway, Elevated..... J. Cooper
 Railway rail guard clamp..... E. H. Johnston
 Railway signal..... O. W. Hart
 Railway switch..... H. Phillips
 Railway tie..... D. F. Earnest et al

Railway tie..... S. McElfatrick
 Railway tie..... M. H. Mahar
 Railway track appliance 2 pats. C. A. Sanborn
 Ratchet drill..... F. C. Torrance
 Razor, Safety..... B. Hirschfeld
 Razor stop..... G. E. Maier
 Refrigerator..... F. A. Hickson
 Register system..... A. Fevola
 Respirator..... W. G. Gates
 Rheostat..... F. E. Goodall
 Rifle magazine attachment..... M. H. Cotton
 Rock crusher..... E. C. Bacon
 Rocking chair..... G. F. Hall
 Rocking chair..... C. D. Koeser
 Rods and their supports or other similar devices together, Means for attaching..... F. M. Seamans
 Rotary engine..... J. R. Scofield
 Rubber patch..... C. O. Tingley
 Sad iron..... P. C. Greenawalt
 Sad iron..... O. Tverdahl
 Saddletree, Adjustable..... T. I. Morrish
 Sash fastener..... R. C. Wright
 Sawmill set works..... W. H. Trout
 Scaffolding..... A. Tingleaf
 Screen..... A. V. Siler
 Screw cutting tool..... C. W. Phillips
 Scribing tool for carpenters, &c. D. M. Barnett
 Seaming sheet metal bodies, Machine for end separator liner, Centrifugal..... M. J. Kenny
 Sewed article seam..... R. G. Woodward
 Sewing machine, Buttonhole..... J. T. Hogan
 Sewing machine feed mechanism..... F. W. Merrick
 Shackle, Spring..... F. E. Geibel
 Shade and curtain hanger Window..... M. Van Boxel
 Shade hanger..... W. A. Worthington
 Shearing machine valve..... E. H. Carrol
 Sheathing plate..... H. Mortenson
 Sheet metal vessels, Dies for drawing..... E. R. Stoddard
 Ships, Hydraulic support for..... G. & K. Prochazka
 Show case..... F. Pollard
 Show case..... H. J. S. Lewis
 Show case bracket and fixture..... G. C. Wright
 Signal device, Electric..... L. S. Wallie
 Signaling and telephoning on electric trolley or other systems, Means for..... C. R. Van Trump
 Signaling system, Electric..... W. F. Robinson et al
 Skate ankle supporter..... A. J. Scriven
 Skate clamp..... S. W. Finch
 Smoke consuming furnace..... L. C. Mooney
 Soap dispensing machine..... W. B. Moore
 Solar motor..... E. P. Brown
 Sound record tablets, Composition of matter for..... J. Sanders
 Soundings at sea, Apparatus for taking..... J. W. Gillie
 Speed limiting device..... H. F. T. Erben
 Spinning ring frame..... O. Dumas
 Sprayer for wounds of animals..... M. F. Havens
 Square..... R. C. Lynn
 Square..... G. L. Wilson
 Stamp stem guide..... F. W. Hooper
 Steam engine..... J. A. Tooley
 Steam generating appliance and adaptation of same to locomotives..... C. Vanderbilt
 Steam trap..... R. G. McAuley
 Steel trap..... H. T. Tweed
 Stereopticon slide carrier..... F. C. Edmonds
 Sterilizing milk or other fluids..... C. de Jong
 Stitches of finished seams, Separating and indenting..... J. B. Hadaway
 Stone setting device, Free..... S. Voss
 Stop motion, Electrical..... G. B. Cooker
 Store front..... M. Salomon
 Stove..... C. Schweizer
 Stove and ash sifter, Combined..... S. Maas
 Stove door and name plate..... E. W. Anthony
 Stove, Gas cooking..... E. Ehrsam
 Stove, Heating..... A. J. Koontz
 Stove steam cooking and water heating attachment..... J. P. Hutchison
 Stove, Vapor burning..... R. C. Barrie
 Stoves or furnaces, Air feeding device for..... T. A. & W. G. Twyman
 Stovepipe fastener..... R. H. & W. C. Hodge
 Strap fastener..... W. D. Lambert
 Switching gate..... A. Tarris
 Switch lock, Electric..... C. L. Buschmann
 Tag..... F. Bachmann
 Talking machine..... J. E. Beatty
 Tank cleaner..... J. W. Bivins
 Tar dehydrator..... E. A. Moore
 Tea leaves or the like, Apparatus for breaking and grading made..... H. M. Alleen
 Telegraph transmitter, Wireless..... H. Shoemaker
 Telephone bracket, Desk..... T. O. Scott
 Telephone exchange system..... J. C. Hisinger
 Telephone exchange system apparatus..... J. G. Roberts
 Telephone exchange trunk line..... C. E. Scribner et al
 Telephone receivers, Jointed adjustable support for..... E. D. McLean
 Tendon pulling machine..... G. A. Congdon
 Thread cutter and tier..... J. B. Underwood
 Threshing machine grain weighing device..... L. M. Thomson
 Tile, Building..... A. Pfeiffer
 Tin can..... L. Diesel
 Tire..... G. H. Hastings
 Tire set, Felly..... E. N. McComb
 Tire, Vehicle wheel..... E. A. Scribner
 Tool..... P. M. Vance
 Tool, Combination..... G. E. Hasson
 Tool, Hand..... S. J. Welter
 Tool handle, Pneumatic..... J. H. Templin
 Toy..... H. T. Turnor
 Toy..... B. Palladino
 Trace, Short harness..... D. K. Bellis
 Trolley catcher and retriever..... C. E. Gierding
 Trolley device..... A. F. Flierboom
 Trolley stand, 2 pats..... B. A. Grasberger
 Trolley stand, 2 pats..... J. A. Grasberger
 Trolley wheel..... E. W. Clark
 Trolley wire guide..... S. P. McMullen
 Trolley wire replacer..... W. Peck
 Trousers press and suit hanger..... F. J. Gruhl
 Trunk..... C. E. Turner et al
 Tube cleaning apparatus..... B. S. & C. T. Hughes
 Tube expander..... L. M. Brown
 Tubes, Forming..... J. C. Smith

Tug. Hame.....W. L. Stringer
Turbine. Elastic fluid.....O. Junggren
Turbine. Steam.....J. Stumpf
Turpentine receptacle.....L. D. Byrd
Type casting and composing machine. Inter-
mittent clutch device for.....M. Wehrlin
Typewriting machine.....C. N. Fay et al
Typewriting machine.....E. E. Barney et al
Umbrella.....G. Turner
Valve.....G. W. Denief
Valve.....A. J. Caldwell
Valve. Emergency brake.....F. B. Corey
Valve. Float.....J. B. Hawkins
Valve gear. Engine.....O. Schwade
Valve. Inflation.....J. E. Keller, Jr
Valve mechanism. Engine.....J. H. Moore
Valves, &c. Mechanism for operating.....
H. E. Warren
Vanner. Mineral.....H. C. Krause
Vehicle gear.....F. E. Wilcox et al
Vehicle top support.....S. M. Buchanan
Vehicles. Power transmission for motor.....
S. H. Hanson
Velocipedes, &c. Driving and change speed
gear for.....L. J. B. Savy
Vending machine.....R. D. Work
Vest protector.....R. Spurgin
Vise.....J. F. Emmert
Voting machine.....J. I. Haynes
Wardrobe.....G. W. Warren
Warp beam brake.....C. E. Buschmann
Washing machine gear.....J. H. & J. B. Taylor
Watchmaker's device.....W. D. Smith
Water closet.....C. Pfau
Water heater.....S. L. Wottring
Water heater with garbage burner.....
M. E. Herbert
Water motor.....W. W. Krewson
Water pipes. Device for automatically reduc-
ing pressure in.....G. H. Dworck
Wate tube boiler.....H. L. Wilson
Wave motor.....2 pats.....J. H. Hutchings
Weather strip.....H. E. Kenny
Weight.....J. B. Arthur
Wheel.....J. B. McVullen
Wheel fender.....T. H. Quinn
Whiffletree coupling.....J. R. Pring
Wind wheel.....M. A. & B. H. Sharp
Winding machine.....S. W. Wardwell
Window. Storm.....G. E. Harsh
Wire stretcher.....L. Rays
Wood slicing machine.....G. S. Mathew
Woodworking machine.....N. F. Coffey
Wrench.....A. Johnson
Wrench.....W. J. Sanders
Writing appliance.....J. Jaakson
Yoke and pole coupling. Neck.....I. F. Brown

DESIGNS.

Fabric. Textile.....W. B. McMeichen
Pocket book.....J. C. Ryerson
Spoon, fork, or similar article.....J. J. Condon
Spoons, forks, or similar articles. Handle for.....
F. Habensack
Stove.....M. R. Lehman
Stove Heating.....M. R. Lehman
Stove or range. Cooking.....F. J. Frey
Stove or range. Cooking.....3 pats.....M. R. Lehman
Toy bank.....A. C. Williams
Type. Font of.....W. Bradley

Issued April 18, 1905.

MECHANICAL PATENTS.

Acid. Making dialkyl barbituric.....
M. Engemann
Adjustable coupling.....P. Hansmann
Advertising apparatus.....R. Wilson
Air brake gasket replacing tool.....G. J. Pilger
Air cushion.....C. R. Schwabenberg
Air inlet for sanitary ventilation of the drain-
age systems of houses, buildings, or the like.
Fresh.....reissus.....G. Cody
Air motor.....J. L. Pilling
Alarm device.....T. N. Derby
Alkali cyanide. Making.....C. B. Jacobs et al
Amusement device.....F. T. Riley
Anesthetic mask.....H. Clayton
Annunciator restorer. Automatic.....
J. I. Gemmill
Anthracene compound and making same.....
R. H. Scholl et al
Anti incrustation fluid.....M. S. Bell
Automobile engine.....A. Loomis
Awning.....F. L. Temple
Axle.....T. O. Watkins
Back geared motor.....L. A. Tirrill
Baling press.....D. Donald
Baling press self feeder.....E. T. Hisey et al
Banjo.....F. A. Linton
Bath tub vapor or shower bath attachment.....
H. L. Larzelere
Battery.....2 pats.....W. C. Banks
Belt or long waist pin adjuster.....J. Goldberg
Binder.....A. W. Friskey
Binder. Loose leaf.....C. A. Carlson
Binder. Loose leaf.....P. A. Bowen
Block signal. Electric.....W. Williams
Boiler cleaner.....T. J. Pascoe
Book or album. Picture.....A. W. Engel
Boot or shoe jack.....A. Bourget et al
Boring tool.....M. D. Converse
Bottle Antiseptic.....F. Sonnenfeld et al
Bottle capping machine.....S. R. Harris
Bottle cleaning machine.....L. Schafer
Bottle closure.....H. J. D. Wipf
Bottle stopper.....G. Hookham
Bracelet.....J. F. Rioux
Braid machine.....C. Klein
Braid. Tubular.....C. Klein
Braiding machine.....A. Le Blanc
Brake system. Quick action automatic fluid
pressure.....J. S. Bubb
Braking device.....R. Marx
Bricks crucibles retorts, or other refractory
articles. Manufacturing fire.....P. Klein
Briquet machine.....F. W. Meeker
Brooder. Chicken.....J. N. Jacobson
Broom guard.....S. G. Wilson
Brush. Bottle washing.....C. K. Volckening
Buckle and hook. Combined.....G. F. Green
Budding tool.....H. C. White
Bulb manipulator.....W. H. Thompson
Burglar and fire alarm.....W. Giles et al
Burglar alarm.....A. Day
Button attachment. Garment.....J. D. Burns
Button. Link cuff.....C. F. King

Cableway. Aerial.....F. R. French
Calendar Desk.....F. M. Turk
Can body forming and soldering machine.....
H. Diecks
Can opener.....W. H. Smith
Cannon. Breech mechanism for quick firing.....
M. Mondragon
Car basket rack.....J. Kirby, Jr
Car brake.....C. A. Fisher
Car brake.....J. Roediger
Car brake, &c.....J. N. Weikly
Car brake.....J. W. Pepple
Car construction.....F. W. Langehenning
Car coupling.....W. McConway, Jr
Car coupling.....G. W. Barfield
Car door arrangement Hopper J. M. Hansen
Car draft or buffing gear or rigging.....J. R. Herndon
Car draft rigging. Railway.....A. W. Sullivan et al
Car guard and sash retainer. Street.....E. T. Robinson
Car. Hand.....P. J. Kamper
Car haul.....A. M. Acklin
Car safety appliance. Street.....R. Hirsch
Car seat.....H. Witte
Car seat and berth. Convertible.....K. Schliepmann
Car vestibule door and gate combined. Rail-
way.....E. T. Robinson
Car vestibule floors. Trap door for.....
K. Schliepmann
Cars. Curtain fixture for open.....G. E. Gilman
Carpet cleaning apparatus.....A. E. Moorhead
Carton bottom flap closing and sealing ma-
chine.....C. Redd
Carton end closing and sealing machine.....
W. H. Doble
Car top closing and sealing machine.....C. Redd
Cartridge belt. Woven fabric.....A. Mills
Cartridge clip.....A. Mills
Cartridge pocket. Seamless woven.....A. Mills
Cask forming device. Stave.....J. Tropp
Casks, barrels, &c. made with staves. Appar-
atus for forming.....F. Alexe
Cast off.....C. R. Rosenberg
Cement block mold.....F. Gutteridge
Cement building block forming mold.....
B. Eiv et al
Centering motor. 2 pats.....J. R. Tanner
Centrifugal machine safety appliance.....
J. S. Johnson et al
Chain and cutter carrying device.....T. G. Aultman
Chair.....J. H. Brownell
Chart.....W. McDowell
Churn.....C. F. Anthony
Churn. Butter working.....D. A. Sprague
Cigar bunch machine. Radial.....N. Du Brul
Cleaning apparatus.....H. L. Dort
Clothes hanger.....J. A. Bryant
Clothes hanger.....E. W. Hawley
Clothes line. Pulley.....J. Roberts
Clutch.....A. W. Cash
Clutch. Automobile.....H. G. McComb
Clutch device.....C. Pluard
Clutch Friction.....W. H. Brown
Cockeye.....S. P. Davis
Coin controlled mechanism. Magazine.....
H. Meyer
Comb cleaning device.....C. B. Ross
Combustion. Means for effecting.....
W. I. Cartwright
Compass. Beam.....R. Jensen et al
Concrete building block.....G. L. Peabody
Concrete walls. Building.....R. & W. C. Deeds
Conveyer.....A. I. Webster
Conveyer. Portable.....F. R. Willson, Jr
Cooker.....C. J. Parker
Coreelement.....R. G. James
Corn crib.....A. J. Andrews
Corn from the cob. Machine for cutting green.....
S. E. & W. W. Morral
Corn husker.....A. I. Rokusek
Corset eye.....F. E. Vandercook
Coupling.....M. G. Aden
Crate. Folding.....J. M. Russell
Crate or drum. Shipping.....J. Laine et al
Cremating furnace.....H. E. Brett et al
Cultivator.....W. H. Hundredmark
Current motor.....M. E. & W. O. Carley
Current wheel. Floating.....P. M. Warren
Curtain fixture. Window.....L. A. Grant
Curtain holder.....H. Althert
Cutting board.....W. W. Campton et al
Dam.....W. J. Meyers
Darning apparatus.....H. S. Brechin
Decorating system.....I. T. Evans
Dental flask.....G. L. Bruce
Dental furnace.....A. E. Matteson
Dental motor shaft attachment.....W. B. & E. P. Alford
Door fastener.....T. Kollme
Door for landaus, &c.....W. W. Culmore
Draft equalizer.....L. O. Sherveu
Draft rigging.....E. C. Washburn
Driving mechanism. Reversible F. Westman
Driving rod connection.....R. A. Eiden
Dumb bell.....G. H. Shepherd
Dye. Blue red azo.....P. Julius et al
Dye. Orange red azo.....P. Julius et al
Dyes. Making black.....R. Rohn
Egg boiling apparatus.....C. A. W. De Vore
Electrical distribution system.....J. B. Entz
Electrical energy through the natural me-
diums. Transmitting.....N. Tesla
Electrostatic apparatus.....F. W. Caldwell
Elevator.....F. R. Willson, Jr
Emergency switch and frog.....C. H. Williams
Fence post.....A. P. Goodell
Filler or packing device.....C. L. Shelton
Fire escape.....J. Peters
Fire extinguishing system.....J. Fiedes et al
Firearm.....M. Kutcher
Firearm. Magazine.....W. Sonnenberg
Fireproof construction and making same.....
A. L. A. Himmelwright
Fish hook.....W. E. Koch
Fish hook.....H. Torgerson
Flash boiler.....H. M. Burnell et al
Float.....F. & F. H. Engelhard
Fluid fuel burner valve mechanism.....
H. M. Burnell et al
Fluid pressure device.....L. Woerner
Fluid pressure lock. Combination.....
W. I. Hofstatter
Flushing outfit. Closet.....T. F. Cray
Folding box.....W. Kronenwetter
Fruit or vegetable eyes. Instrument for re-
moving.....F. G. Yawman

Foot warmer.....E. P. Sanders
Fruit picker.....J. G. Smith
Fuel and making same. Artificial.....F. W. Meeker
Fuels. Means for producing complete com-
bustion of.....J. B. Barrett
Furnace.....H. A. Poppehussen
Furniture roll.....B. M. Haubold
Game apparatus.....P. W. Jannoch
Garment supporter.....W. F. Heine
Gas and electric fixture. Combination.....
C. S. Steinberg
Gas burner safety attachment.....B. A. Nemo
Gas burners using incandescent gas mantles.
Pilot light for Bunsen or other F. M. Brooks
Gas generating apparatus.....G. W. Parker
Gas heater. Fireplace.....Q. S. Bacbus
Gas purifier.....A. Steinhart
Gear wheel. Yieldable.....C. C. Mattison
Gearing disconnecting apparatus. Belt.....
J. J. Rieger
Gearing. Variable speed.....W. C. Conant
Gearing. Variable speed.....J. L. Spencer
Glass and mechanism therefor. Working.....
S. H. Peltier
Glass beveling machine.....J. H. McBride
Glass, &c. Furnace for bending and shaping
sheet.....W. Cutler
Glass melting furnace.....E. Baudoux
Glass, &c. Mold for bending and shaping
sheet.....W. Cutler
Glass molding machine.....E. Miller
Glass tank furnaces. Drawing apparatus for.....
J. Proeger
Globe or chimney support.....I. L. Smith
Governor device for valve and igniter gear
for explosive engines.....E. Westman
Grain heater.....P. Provost
Grain to or from ships. Apparatus for the
conveyance of.....W. Meyer
Grinding and polishing machine.....E. C. Schrader
Grinding machine. Card.....S. B. Roy
Groove and thread cutter.....F. Berszinsky
Hair pins, &c. Manufacturing.....T. Roos
Hame staple and clip.....T. E. Opp
Hammock.....J. E. Palmer
Harrow scraper. Disk.....C. P. A. Friberg
Harvester. Grain.....H. J. Case
Harvester snapping rollers. Corn.....
J. E. Goodhue
Hat fastener.....F. E. Heffernan
Hat. Outing.....F. W. Nash
Heating and melting means.....J. Collins et al
Heating system.....Q. N. Evans
Heating system.....E. Glantzberg
Hinge.....H. W. Hubbard
Hinge. Double swing door.....A. J. Rosentreter
Hoisting machine.....W. A. Barker
Hoisting mechanism.....M. C. Hall
Horseshoe.....F. Herzog
Hose connector.....K. O. Muehlberg
Hydrocarbon burner.....A. Phinney
Ice pick.....C. W. Halsey
Illusion apparatus.....C. Rosenfeld
Induction coil.....J. A. Baker
Inhaler. Atomizing.....A. Bulling
Inner tube and means for inflating same.....
W. A. & H. S. Hollis
Insecticide.....H. Lenz
Insulation for electric conductors.....
L. E. Barringer
Insulator. Electric wire.....S. B. Flynt et al
Internal combustion engine.....A. Willmer
Internal combustion engine.....C. W. Weiss
Invalid's chair. Portable.....E. E. Higgins
Jar holder and spiral wrench. Fruit.....
S. I. Blocher
Journal lubricator oil displacer.....A. H. Johnson
Labeling machine.....F. C. Fisher et al
Labeling machine.....L. C. Crowell
Labeling machine. Can.....S. E. & I. Morral
Lace fastener. Shoe.....G. Weinberg
Lamp bracket.....W. I. Holder
Lamp burner.....S. B. Morris
Lamp holder.....E. E. Henry
Lamp. Incandescent electric F. H. Blackburn
Lamp. Miner's.....F. Koch
Lamp or lantern font.....G. H. Rolfe
Lathe.....J. J. Pealing
Lathe change speed gearing. Engine.....
A. E. Newton
Lead sulfate into lead hydroxid. Converting.....
A. S. Ramage
Leg rest.....3 pats.....G. Kelly
Leg support and carriage. Combination.....
G. Kelly
Lever and quadrant apparatus.....H. Austin
Lever lock.....W. Honscheid
Lifting jack.....E. Cook
Lighting device. Windproof.....H. A. Gibbons
Lightning arrester.....L. M. Gates
Linotype machine.....D. S. Kennedy
Linotype machine.....S. C. Nielsen
Linotype machine.....C. A. Albrecht
Linotype machine.....R. M. Bedell
Liquid meter.....F. Pascal
Liquid separator. Centrifugal.....J. I. Friedrich
Loom shuttle box motion.....G. F. Hutchins
Loom shuttle locking means.....H. Cote
Loom weft replenishing mechanism.....
O. Cosserat
Loom weft replenishing mechanism.....
G. H. Parker et al
Looms. Shuttle positioning means for filling
replenishing.....C. F. Roper
Lubricants. Manufacturing.....G. W. Vanderelice et al
Lubricating block.....W. R. Griffen
Lubricator.....F. E. Eckhart
Lubricator.....C. H. Allmond
Macaroni making machine.....V. Chiappinelli
Mail bag catcher.....C. W. Walker
Mail box.....P. A. Shely
Mail box.....J. H. Dickson
Manure spreader.....E. P. Ross
Massaging apparatus.....E. J. Godman et al
Mattress. Reversible section.....E. K. Jacobs
Mechanical arm.....W. H. Ernst
Metal fabric. Flexible.....C. T. Gilmore
Metals from their ores. Separation of.....
J. D. Wolf
Mixing machine.....J. Embleton
Mixing vessel and clamp.....J. F. Lamb
Mop head and wringer. Combined.....
J. W. Walters
Motor controlling and regulating device.....
O. C. Britsch
Motor for turn tables or similar structures.....
J. L. Pilling

Motor starting device.....A. C. Eastwood
Mower. Lawn.....J. I. Gernau
Muller. Exhaust.....N. W. H. Sharpe
Musical instruments. Means for utilizing per-
forated music sheets for controlling auto-
matic.....T. P. Brown
Nail machines. Apparatus for feeding wire.....
G. Jewett
Necktie fastener.....C. Kolshorn
Nut. Cap.....F. Lambert
Nut lock.....B. D. Thompson
Nut lock.....J. T. Crenshaw
Nut wrench.....F. G. Cornell
Oil cup for quick-moving bearings.....
R. J. Preece
Oil press.....D. A. Tomkins et al
Oiler.....J. Knecht
Ordnance sight. Telescopic.....H. C. Mustin
Ore crusher.....F. E. Woodbury
Ores. Roasting.....S. B. Patterson
Packages. Arm clasp for carrying.....C. F. Linn
Pail. Self-heating lunch or dinner.....
R. Raines
Paper assembling, stitching, and folding ma-
chine.....2 pats.....T. C. Dexter
Paper bag machine.....F. E. Strassburg
Paper bag machine.....H. Elsas
Paper bag making machine.....O. Hesser
Paper feeder and cutter. Ribbon.....
E. D. Casterline
Paper holder.....G. Kaplingst et al
Paper making machine suction roll.....
J. E. Rudolph
Paste, dough, or the like dividing machine.....
K. H. Rindler
Pendulum mill driving device.....I. Durnholz
Photograph.....E. A. Ivatts
Photographic plate holders. Light seal for.....
J. S. Wright
Photographic printing apparatus.....N. D. Weman et al
Pictures. Apparatus for the production of
gelatin.....P. Charles et al
Pipe coupling.....G. H. Reynolds
Pipe coupling. Train.....H. J. Noll
Pipe head. Dry.....H. G. Coryell et al
Pipe joint. Ball and socket.....N. F. Niederlander
Pipe wrench and pliers. Combined.....G. M. Mason
Pistol case or holder. Woven.....A. Mills
Pistol. Child's.....H. Kaiser
Piston.....D. C. Lewis
Plane. Carpenter's.....A. Kalla
Plating apparatus.....J. Schulte
Pliers.....R. Walton
Plow.....2 pats.....E. Fowler
Plow.....J. P. Smith
Plow cultivator attachment.....S. D. Chambers
Plug. Expandable.....C. D. Mosher
Pneumatic cleaner.....A. E. Moorhead
Pneumatic compressor controller.....R. F. Bergh
Pneumatic motor. Portable.....R. A. Norling
Pole. Metallic.....G. D'Esposito
Preserving jar.....J. C. Anderson
Printing machine wiper. Copper plate.....
M. Rudometoff
Propeller.....C. T. Freid
Pull rod rotary support.....J. Kerlin
Pulley. Sash.....K. Kerr
Pump jack.....P. A. Myers
Pump. Jet.....E. W. Keller
Punch. Hand.....A. Skow
Punch. Multiple.....G. E. W. Marsden
Puzzle.....A. Reduit
Quilting frame hanger.....J. L. Renick
Radiator. Sheet metal.....W. H. Kinnear
Rag engine.....W. Schmidt
Rail and bed. Car.....R. M. Burke
Rail chair. Boltless.....W. H. Pishel
Rail construction.....R. M. Burke
Rail joint.....A. H. Stevenson
Rail joint.....J. W. Anderson
Rail joint.....I. Edwards et al
Railway rack rail switch mechanism.....
F. L. Sessions
Railway rail anchor.....R. F. Beckman
Railway switch. Electrically controlled.....
R. V. Cheatham
Railway switch. Suspended Electric.....
R. Pfaffenbach et al
Railway tie.....Z. C. Robbins
Railway vehicle wheels. Fastening tires to.....
T. Stanf
Range. Gas.....J. F. Mills
Refractory bodies. Making.....E. G. Acheson
Rock drill.....I. M. Hamor
Rolling. Shaping metallic ingots by trans-
verse.....L. B. Davis
Rotary engine.....M. E. Fuller
Rotary engine.....J. P. Magney
Rotary engine.....C. A. & O. W. Hult
Rubber. Cleaning.....W. A. Lawrence
Sanitary device.....G. H. Davis
Sash cord fastener.....P. S. Stauffer et al
Saw handle.....C. Cassel
Sawmill carriage emergency brake.....
J. L. Graham
Sawmill feeding mechanism.....F. E. Woodworth
Saw. Portable hand.....R. S. McCreary
Saw set.....O. E. Lindfors
Sawing machine. Circular.....E. G. Herbert
Scale computing apparatus. Weighing.....
J. Thomas
Screw thread and worm cutter. External.....
J. F. Maloney
Seaming machine. Double.....R. Zeh
Seeder.....E. K. Rea
Separating and threshing appliance.....
H. Hendrickson
Setting.....G. W. Dover
Shackle.....E. F. Bonnel et al
Shelf goods box.....C. Arnold
Shingle. Roofing.....L. G. Sharp
Shoe tree.....N. J. Dohel
Shovel or spade.....M. Cahill
Shovel case.....C. F. Murray
Signal apparatus.....C. R. Gunn
Signal light.....2 pats.....E. A. Edwards
Signal system and apparatus therefor.....
F. P. J. Patenalet et al
Siphon head for aerated liquids.....
T. H. W. Idris et al
Slimes in ore reduction. Treating.....
G. A. Duncan
Slimes in ore treatment. Filtering cell for sep-
arating.....G. A. Duncan
Slider.....H. Thiemann
Smoke consumer.....G. Gramond

Smokeless furnace..... F. D. Shepherd
 Soap and making same. Antiseptic..... O. Liebknecht
 Soap dispensing apparatus..... W. R. Saltzgeber et al
 Soot arrester and draft regulator C. H. Turver
 Sound. Finding the direction of..... A. J. Mundy et al
 Spark arrester..... A. H. O'Quinn
 Speed indicator..... E. T. Turney
 Speed mechanism. Variable..... H. M. Norris
 Spindle..... J. Wahl
 Stack piler and inclosure..... J. H. Clark
 Stamping apparatus. Check..... F. W. Fuller
 Stanchion opening device..... E. O. Bergh
 Steam and oil trap..... J. Franey
 Steam boiler..... L. Hussey
 Steam generator..... C. B. Rearick
 Steam trap..... 2 pats..... A. L. French
 Stone molding tool..... J. B. Wilson
 Stop bead fastener. Adjustable..... W. Van Gaasbeek
 Stop motion mechanism for textile machinery. Electrical..... J. B. Whitney
 Stove..... A. K. Beckwith
 Stove or heater. Gas..... H. Clayton
 Stovepipe ventilator..... J. E. & C. G. Nelson
 Street light hangers. Flexible support for..... J. Stevenson, Jr
 Stretcher..... G. A. Lung
 Stretcher or spreader..... I. E. Palmer
 Stuffing box..... J. W. Swan
 Sucker rod adjuster. Deep well..... E. R. Graham
 Swinging chair..... A. P. Bottgar
 Syringe..... W. H. Pontius
 Talking machine needles. Device for handling..... D. J. Hood
 Telegraph. Printing..... I. C. Barclay
 Telegraphic system. Wireless..... W. W. Massie
 Telephone call or ringer..... C. E. Egan
 Telephone receiver..... C. T. Mason
 Telephone receiver support..... E. H. Little
 Telephone transmitter..... J. Erickson
 Telephone transmitter..... H. P. Clausen
 Tellurian..... C. F. Blakeslee
 Tent fastener..... J. Blair, Jr
 Tenting machine..... A. McLean
 Thill coupling..... M. Cahill
 Thread orake..... H. A. Bates
 Thruau. Mechanism for detecting irregularities in silk..... J. B. Whitney
 Threshing machine band cutter and feeder..... H. T. & S. E. McCormick
 Threshing machine sieve..... C. W. Van Wye
 Ticket or card holder..... A. L. Johnson
 Tile. Knocking..... L. G. Sharp
 Tipping machine..... F. G. Dickerson
 Tire..... C. A. Brackelsberg
 Tire and rim. Vehicle..... F. Feldhaus
 Tire tread..... J. R. Whittemore
 Tobacco. Treating..... J. L. Daniels, Jr
 Tomato scader..... J. P. Walker
 Tool driver. Electric..... W. F. Wagner
 Tool handle. Pneumatic..... J. H. Templin
 Tooth. Artificial..... C. T. Campbell
 Tooth straightening apparatus..... W. B. Snelp
 Toy air ship..... L. H. Hunter
 Toy. Trick..... T. W. McGrath
 Toy. Whirling..... W. Schaller
 Track fastener..... C. R. Austin
 Track drill..... W. E. Ludlow
 Tractor engine..... B. J. Diplock
 Traction wheel..... C. A. McIntosh
 Train signal. Electric..... A. W. Sullivan et al
 Transporting device..... H. Schuster et al
 Trolley..... L. Leuenberger
 Trolley pole catcher..... J. H. Walker
 Trolley retriever..... F. M. Miller
 Trunk..... 2 pats..... H. Davis
 Tutting machine. Mattress..... G. W. Bent
 Tug. Hull..... P. H. Fontaine
 Turbine. Fluid pressure..... G. Westinghouse
 Twine holder..... E. E. Matsson
 Twisting machine. Warp..... G. Hiller
 Twisting or spinning machine..... H. G. Beede
 Twisting or spinning machine knotting attachment..... H. G. Beede
 Tyer..... R. M. Downie
 Tyer iron..... G. A. Walter
 Typewriter ribbon guide..... C. H. Dowlen
 Typewriting. Finger exerciser for students of..... J. T. Brattin
 Typewriting machine..... C. S. Labouff
 Typewriting machine controlling apparatus..... F. G. Creed
 Umbrella support..... D. Whipple
 Valve..... H. Lippold
 Valve. Blowing engine..... J. Fawell
 Valve gear..... A. Loomis
 Valve. Triple..... J. B. Purdy
 Valve. Whistle..... F. L. Wolfe
 Vanadium, molybdenum, titanium, and tungsten
 Treating products containing..... H. L. Herrenschildt
 Vegetable cutter..... R. L. Dorsey
 Vegetable cutter..... J. J. Dione
 Vehicle extension top or canopy..... H. Smith
 Vehicle sand box..... T. H. Stansill
 Vehicle steering mechanism. Motor..... C. W. Russell
 Vehicle storm shield..... W. W. Warner
 Velocipede..... E. W. Hyde
 Vending machine..... A. Rydquist
 Veneering. Machine for sawing quartered oak or mahogany..... 2 pats..... A. Brosius
 Ventilating and air cooling mechanism..... J. Kelly
 Ventilator..... S. D. Hanney
 Ventilator..... S. H. Jacobson
 Veterinary instrument..... H. M. Stevenson
 Voting machine..... W. Glenn
 Wagon bed. Transformable..... A. R. Stoner
 Watchcase..... W. E. Porter
 Water closet bowl..... M. D. Helfrich
 Water heater..... Q. S. Backus
 Water heater and garbage burner. Combined..... F. C. Kummerow
 Water meter..... 2 pats..... F. Lambert
 Water of condensation. Means for separating and purifying..... M. M. Phenice
 Water purifying apparatus..... B. B. Susanka
 Welding..... O. Egen
 Well drilling machine..... J. R. Griffith et al
 Wheel..... J. C. Couper
 Wheel..... A. J. Adams
 Whip and line lock..... B. Moore
 Window. Horizontally pivoted..... H. B. Hiteshaw
 Window screen..... W. H. McGlamery
 Window screen..... W. J. Baker
 Wire fabric making machine..... A. L. Kitzelman

Wire tightening device..... G. E. Martin
 Woodwork. Uniting..... W. J. Boda
 Wrap. Package..... W. H. Pollock
 Wrapping machine..... A. E. Hopkins
 Wrench..... J. Delancy
 Wrench..... K. G. Overland
 Wrench..... L. G. Egger
 Wrench..... C. C. Longard
 Yoke construction..... N. H. Roe

DESIGNS.

Badge..... W. H. Atkins
 Clock support..... W. E. McGraw
 Dish..... O. S. Straus
 Electric light cluster..... J. D. O'Brien
 Lamp..... W. Gray
 Spoon..... B. D. Loring
 Spoons, forks, or similar articles. Handle for..... W. C. Codman
 Spoons, forks, or similar articles. Handle for..... R. von Hagen
 Tiling..... D. W. Austin
 Type. Font of..... G. O. Outley
 Type. Font of..... W. A. Schraubstadter

Issued April 25, 1905.

MECHANICAL PATENTS.

Accounting appliance. Credit P. A. McCaskey
 Adjustable wrench..... M. C. Wilson
 Air brake..... D. F. Snyder
 Air coupling..... C. A. Seiler
 Animal trap..... C. W. Howe
 Anvil for making tanks, cisterns, boxes, etc..... T. B. Leech et al
 Apron..... E. C. Moore
 Armature..... C. W. Johnson et al
 Article holder and forming same. Multiple..... H. H. Cummings
 Automobile drive gear..... H. Ford
 Automobile frame..... E. Huber
 Automobile front. Movable C. E. Chamberlin
 Automobile spare tire receptacle G. E. Mitchell
 Axle boxes. Device for removing oil cells from locomotive..... P. Swanson
 Baby holder..... J. W. Winn
 Bait moving device..... O. Holz et al
 Baling press..... J. M. Wilson
 Ballast spreader..... A. Torrey
 Balls. Manufacturing golf..... R. Hodgkins
 Band brake..... L. S. Chadwick
 Bathing apparatus splash guard..... E. J. Bissell
 Bearing. Adjustable..... H. G. Beede
 Bearing. Antifriction..... C. H. Christianson
 Bearing. Antifriction..... J. Bevington
 Bed bottom. Spring..... F. S. Sprague
 Bedstead. Extension..... R. H. Bradley
 Bedsteads or the like. Adjustable support for sofa..... D. C. Storr et al
 Belt. Machinery driving J. A. & M. A. Hendry
 Bill holder..... H. Y. Otto
 Billiard cue tip..... E. L. Robinson
 Binder attachment..... A. Williams
 Binder. Flexible elastic..... C. T. Whitsett
 Binder. Temporary..... J. Miller
 Boiler..... W. T. Fox
 Boiler blowing off apparatus..... W. L. Miller
 Boiler superheater. Flue..... W. Schmidt
 Boiler superheater. Tube..... W. Schmidt
 Boilers to service condition. Plant for cleaning and restoring..... A. R. Raymer
 Book binding or cover..... G. D. Emerson
 Bottle. Non refillable..... F. A. Muller
 Bottle or other vessel with ground stopper..... J. Andersson
 Bottle stopper retaining device..... J. J. O'Neill
 Bottles, &c. Fastening means for..... M. A. Lazareff
 Box blank mitring and cornering machine..... E. H. Taylor
 Bracelet..... H. B. Richardson
 Brake beam fulcrum block..... C. E. Bauer
 Brick compound. Paving..... T. S. Pierce
 Bridge track end adjustment. Draw J. Harsen
 Broiler..... C. C. Messmer
 Broom..... F. R. Lay
 Brush reciprocating device..... C. W. Johnson
 Buckle. Bale tie..... J. C. Jenkins
 Buckle. Separable..... W. L. Dudley
 Building block..... J. Schall
 Building block. Interlocking..... J. Schall
 Bunsen burner for lighting and heating..... J. Moeller
 Burglar trap..... G. W. Wright
 Buttonhole..... H. Walden
 Cable head and pole house. Combined..... F. B. Cook
 Cake icing machine..... J. F. Scott et al
 Calendar..... E. J. Brandt
 Camera..... G. H. Dorr
 Can capping tool..... S. B. Townsend
 Candy or biscuit cutting machine..... O. B. Zimmerman et al
 Car coupling..... J. Snyder
 Car coupling..... W. McConway, Jr
 Car coupling..... J. Snyder
 Car door..... E. F. Martin
 Car double friction gear. Motor..... H. C. Frederiksen
 Car draft rigging. Railway..... W. H. Miner
 Car. Dumping..... A. W. Dahmer
 Car roller side bearing. Railway..... J. F. O'Connor
 Car structure and bolster..... H. H. Vaughan
 Car. Tank..... W. P. Bettendorf
 Car vestibules. Combined door and gate keeper for street..... E. T. Robinson
 Cartridge. Short range or gallery..... T. S. King et al
 Cash register..... J. P. Cleal et al
 Cash registering apparatus. Rocking printing table for..... J. Frydman et al
 Casting apparatus. Metal..... J. Scott
 Cattle loading or unloading device..... C. P. Ochis
 Celery trimmer..... L. B. Keller
 Cement block mold..... H. F. Lightner
 Cement kiln..... C. Ellis
 Chain or cord attaching device J. B. Clermont
 Churn..... A. N. Rowe
 Cigar cutter..... F. W. Parris
 Cigar mold..... A. S. Koch
 Cigarette packing machine..... M. Placer
 Clamp..... L. Marceau
 Clothes pin..... A. W. Krieger
 Clothes pin..... J. B. Foote
 Coal breaker..... A. M. Acklin
 Cock safety attachment. Gas..... J. A. Olson
 Coffee, &c., percolator..... F. Acker

Collars. Making horse..... T. R. Massey
 Column..... R. Hegener
 Column, shaft, &c. Staved..... H. S. Conrow
 Combing machine. Circular..... E. Meunier
 Concrete building block and wall C. A. Meyers
 Concrete casing..... F. A. Koetitz
 Confection and making same. Cocoa..... C. H. & M. M. Burckett
 Confection. Chocolate..... W. M. Baker
 Conveyor loading device..... F. R. Willson, Jr
 Coop. Poultry..... W. Mitchell
 Corset. Abdominal..... C. Munter
 Corset shield..... J. W. Thayer
 Cotton chopper and cultivator. Combined..... W. M. Arnold
 Cotton picker..... S. L. Bond
 Cover. Receptacle..... A. Q. Walsh
 Crate. Metallic..... J. Matny
 Crushing machine..... T. J. Gray
 Cultivator..... G. D. Houston
 Cultivator..... 2 pats..... S. L. Allen
 Cultivator..... S. H. Coleman
 Cultivator..... M. McInnery
 Curling iron. Electrically heated J. Szollosy
 Current rectifier. Alternating..... E. H. Porter et al
 Currents. Means for obtaining redressed..... L. Magrini
 Curtain and shade holder..... J. S. Moore
 Cylinder jacket..... A. Benedetto
 Dental disk shield..... W. F. Green
 Dental instrument. Operative..... F. L. Norton
 Dental plate swaging apparatus..... C. L. Nelson
 Dental pliers for shaping clasps and half collar crowns..... K. M. Sanger
 Dish drainer..... F. Schmeider
 Disinfecting device..... G. Krueger
 Display fixture..... H. Frankel
 Display stand..... J. W. Ferle et al
 Distilling apparatus. Turpentine..... S. S. Fleming
 Distributing device..... H. P. Harpstrue
 Dog. Receding..... A. B. McCulloch
 Doll, ornamental figure..... D. Budwig
 Door and operating means therefor..... O. Bergman
 Door catch..... G. Doyas
 Dough divider..... F. H. Van Houten
 Dough dividing machine..... F. H. Van Houten
 Draft equalizer..... J. Matlock
 Dredge and mining sluice. Combined..... C. H. Lewis
 Dredging machine..... A. N. Smith
 Driver wheel..... E. Stanchiff
 Dynamo or motor..... J. A. Titzel, Sr
 Electric machinery. Dynamo..... J. H. S. Mawdsley
 Electric switch..... W. D. R. MacDiarmid
 Electric switch and air gage. Pressure controlled..... W. J. Pugh
 Electrical interrupter..... T. J. Murphy
 Electrical panel board..... H. Krantz
 Electrolytic separation..... W. Hoopes
 Elevator guide lubricator..... C. H. Egger
 Elevator safety brake..... T. Boylan
 Engine and air compressor. Combined..... D. Schifbauer
 Engine starter. Gas..... N. W. Harman
 Engines. Electric sparking device for explosive..... C. S. Dutton
 Engraving machine..... F. J. Nutting
 Explosive engine..... R. H. Layton et al
 Fastener. Separable..... W. L. Jndson
 Fastening device..... H. E. Berkey
 Fatty substances. Cooling melted..... A. R. Wilson
 Featherbone manufacturing apparatus..... O. J. Weil
 Feed water filter and heater. Combined..... H. C. Tabrett et al
 Feed water heater and purifier..... H. E. Moffat
 Fence machine. Wire..... J. M. Denning
 Fence post..... J. R. Covey
 Fence. Wire..... J. M. St. John
 Fence wire fastener..... A. Cottom
 Fence wire fastener..... S. L. Hulsey
 File. Bill or invoice..... B. Couch et al
 File or cabinet. Card index..... J. S. Nowotny
 Filing cabinet..... G. A. Shoemaker
 Filter..... F. W. Pendergast
 Filter..... J. L. Greasinger
 Filter..... J. R. Porter et al
 Filter pulp. Apparatus for treating..... K. Birkholz
 Filter. Rain water..... C. E. Hening
 Filter. Water..... C. Kasper
 Finger bowl..... A. S. Stebbins et al
 Fire alarm..... P. H. Eaton
 Fire alarm..... J. Fiddes et al
 Fire alarm and fire extinguishing apparatus..... J. Hartley
 Fire alarm button. Explosive..... E. A. Sweet
 Fire escape..... H. C. Whitley
 Fire extinguisher..... C. W. Aton
 Fire extinguisher valve. Automatic..... E. G. Pattee
 Fireproof window..... A. Kousalik
 Fish hook..... F. B. Petzel
 Fish hook..... S. H. Friend
 Fish hook..... H. S. West
 Flash tester..... F. A. Courtois
 Floor clamp..... F. W. Hammond et al
 Fluid pressure brake..... H. R. Mason
 Fluid pressure brake..... M. W. Hibbard
 Fluid pressure regulator..... E. W. Crawford
 Friction device..... G. L. Harvey
 Frog point..... T. Donahoe
 Furnace..... A. M. Boughton
 Furnace..... A. J. F. Miller
 Furnace attachment..... F. A. Hoeft
 Furnace charging box..... H. Wright
 Furniture. Combination..... D. Froehlich
 Game apparatus..... A. Gross
 Garment attachment..... F. M. Shepard
 Garment fastening device..... L. A. Ferrandini
 Garment supporter..... E. A. Guinzburg
 Gas burner..... E. S. Edwards
 Gas burner..... F. M. Ashley
 Gas from oils. Apparatus for making..... N. G. Hock
 Gas producer..... J. Reuleaux
 Gas regulating burner..... C. W. Taylor
 Gas regulator..... F. Wheeler
 Gate..... L. G. Price
 Gate..... T. W. Howard
 Gearing. Bevel..... J. A. Stone
 Glass. Apparatus for the manufacture of..... R. S. Pease
 Glass bodies. Manufacturing..... R. S. Pease
 Glass making apparatus..... R. S. Pease
 Glass. Manufacturing wire prism A. Shuman

Governor..... C. Pfeiffer
 Grain drill..... G. W. Denyes
 Grain drill..... W. Fetzter
 Grain drill coupling and draw bar..... W. Fetzter
 Grain shocking machine..... L. B. Eberly
 Granulator..... F. A. Ruf
 Grate bar. Rocking or shaking..... A. B. Willoughby
 Grease cup. Automatic..... J. F. Lewis
 Grinding machine..... H. E. Menier
 Grip device. Friction..... B. H. Green
 Gun..... T. C. Johnson
 Gun firing mechanism. Breech loading..... C. P. E. Schnelder
 Guns. Adjustable weighting sights for..... J. Hirst
 Hair roll..... C. V. D'Ossone
 Hair spring adjusting apparatus..... E. De Barthe
 Hair tonic..... E. Maros
 Hammer handle and connecting plug. Pneumatic..... M. Hardsocg
 Hammer. Steam..... F. C. Emrick
 Harrow riding attachment G. P. Kirkpatrick
 Harvester. Cane..... G. D. Luce
 Harvester. Corn..... J. E. Goodhue
 Hasp fastener..... J. Hartshorn
 Hat fastener..... L. Perotti
 Hat fastener..... H. S. & C. H. Fairbanks
 Hatchway shutting or closing means..... E. F. A. von Schrotter
 Hay fork and hook..... C. B. Cady
 Hay loader..... J. H. F. Kuehl
 Hay sweep attachment..... J. R. Judge
 Heating system. Electrical..... A. D. Newton
 Heating systems. Condense water return apparatus for steam..... E. F. Osborne
 Heel protector. Elastic..... D. H. Deery
 Hinge..... C. Keith et al
 Hinge. Spring..... H. J. Valentine
 Hitching rope spiral slip loop..... C. Heilrath
 Hoist..... E. C. Bouquet et al
 Hoist and dump. Automatic..... E. J. Trudeau
 Holdback. Neck yoke..... J. Tregellas
 Horse detacher..... B. F. Hatcher
 Horse releaser..... J. F. Shleeter
 Horeshoe attachment..... C. R. Fleischmann
 Hose coupling..... L. Vogt
 Hose supporter..... M. L. Margolish
 House trap and cellar drain. Combined..... F. C. Edelen
 Hydrocarbon vapor burner feeding device..... N. P. Fraser
 Ice creeper..... E. C. Bartley
 Illusory effects. Apparatus for producing..... C. Rosenfeld
 Indexes, document files, &c. Follower block and clutch therefor for card..... C. Zimmerli
 Ingot stripping apparatus..... C. L. Taylor
 Insect catcher..... F. W. Scofield
 Insole and arch support. Combined..... C. Huether
 Internal combustion engine F. A. Heselwender
 Iron, cast iron and steel..... J. Lecarme
 Jar closure..... L. C. Sawin
 Jewelry pendant swivel..... J. C. Nordt
 Jaws harp..... C. E. Mincks
 Jig. Center..... E. A. Christoph
 Joint..... A. R. Ferguson
 Journal bearing..... H. V. Kuhlman
 Journal box. Car..... H. C. Williamson et al
 Key ring and name plate. Combined..... L. Wolferrmann
 Knob, door bell and burglar alarm. Combination door..... E. Stewart
 Laboratory weights..... C. H. Stoeltgen
 Lacing. Invisible..... A. R. Colton
 Ladder. Truck..... T. Haines
 Lamp. Incandescent electric..... H. C. Parker
 Lamp. Self carburating..... H. M. Reichenbach
 Lathe head stock. Engine..... W. Lodge et al
 Lathe head stock. Gearing..... N. D. Chard
 Latrine seat cover..... J. Seifritz et al
 Lawn roller and mower..... H. C. Slater
 Leaching apparatus..... C. E. Dewey
 Leather work. Ornamental..... E. E. Burton
 Level attachment for straight edges. Spirit..... A. J. Perks
 Lifting jack..... A. L. Stanford
 Liquid distributor..... L. Perotti
 Liquid return system..... H. L. Hepburn
 Liquid separator. Centrifugal..... H. McCormack
 Lithographic machine..... C. M. Kneppeler
 Logging train air brake attachment..... A. D. Miller
 Logging truck..... H. B. Gillette
 Loom for cross weaving..... G. H. L. Pettie
 Loom weft replenishing mechanism..... H. I. Harriman
 Loop box..... W. C. Lawrence
 Lubricator..... J. E. Gill
 Lubricator..... C. Comstock
 Mail bag delivering and catching apparatus..... O. G. Hoff
 Mail bag hanger..... G. A. Demarest
 Mail chute..... F. E. Anderson
 Mandrel..... J. A. & H. W. Hock
 Manhole cover..... J. H. Vanderslice
 Massage appliance. Vibratory..... G. B. Fraley
 Match box..... T. H. Pace
 Match safe and cigar cutter. Combination..... B. Rivkin
 Measuring and recording machine. Automatic..... H. C. Lavery
 Meat extracts. Making..... U. Ciantar et al
 Mechanical movement..... W. Sweet
 Medical apparatus..... F. Hofmann
 Metal Manufacturing expanded..... N. E. Clark
 Metal wheels. Manufacturing..... C. Borg
 Milking machine..... W. Sim
 Miter box. Adjustable biplane..... C. V. Friend
 Mole trap..... A. Y. Swope
 Mop head and wringer. Combined..... C. R. Carpenter
 Mop wringer..... J. K. Nye
 Motor suspension for trucks, &c..... W. G. Price
 Muffler..... W. W. Broga
 Muffler..... F. J. Hecht
 Muffler. Head, face, and neck..... B. Rautenberg
 Music desk..... A. Bollermann
 Music leaf turner..... W. J. Morris
 Music sheets. Pneumatic motor for driving..... J. Wieser
 Musical instrument..... G. F. Lyon
 Musical instrument operating mechanism. Automatic..... A. Keller
 Musical instrument pneumatic motor..... L. U. Jobs

Napkin holder E. S. Dalton
 Neckband stretcher W. M. Barnes
 Necktie holder W. B. Smith
 Nut lock 2 pats. W. L. Morrow
 Nut lock J. J. Murphy
 Oil engine. Crude D. R. Morrison
 Operating table or similar structure G. L. Poll
 Ore. Apparatus for the treatment of R. J. Reilly
 Ore concentration A. E. Cattermole, et al
 Overall garment J. C. Ferger
 Oxygen from alkali peroxid. Obtaining H. Foersterling et al
 Packing. Metallic piston N. A. Christensen
 Paper bag making machine B. J. Jensen
 Paper box P. G. Smith
 Paper clip C. E. Gardner
 Paper coating F. N. Govers
 Paper cutting device C. T. Ehninger
 Paper fixture. Toilet G. T. Johnson et al
 Paste receptacle F. J. Kellher
 Pear blight destroying composition O. Horton
 Peat. Treating W. T. Griffin
 Pedal. Mouse proof F. S. Smith
 Pen wiper R. Addison
 Penholder L. Matthews
 Perch support A. S. Hoxie
 Photographic print exposure meter S. Cohen
 Pianissimo device O. Glatt
 Piano C. A. Haddorf
 Piano player. Automatic J. B. Walker
 Pianoforte action F. A. Lingsch
 Pickle liquor. Utilizing spent A. S. Ramage
 Picture exhibitor changing mechanism E. Jehu
 Pictures. Making waterproof transparent celluloid A. Becher
 Pipe wire W. Wattie
 Pipe couplings, &c. Sealing device for R. D. Simson
 Pipe wrench J. W. King
 Pipe wrench B. F. Woodward
 Plating machine W. Wolkan
 Planing or mitering table L. R. Slevin
 Plant can. Transplanting T. L. Klaffke
 Planter. Corn W. L. Beall
 Plastic material press G. W. Thomas
 Plow attachment W. F. Edwards
 Plow point W. H. Huxford
 Plow stock N. C. Wade
 Plow weed hook G. W. Reiman
 Plug and spring jack switch W. W. Dean
 Plumb and level. Mechanic's folding C. E. Castle
 Plumb bob M. D. Converse
 Pole coupling. Vehicle D. S. Watson
 Portable house G. N. White
 Potato cutter and planter. Combined H. Dingman
 Potato digger L. W. Brabble
 Potential regulator E. H. Porter et al
 Poultry house G. C. Scott
 Power mechanism F. L. Williams et al
 Power or motion transmission mechanism J. Dring
 Precipitation process G. H. Waterbury
 Printing on cylinders. Mechanism for G. W. Elrod
 Printing. Photomechanical H. R. Reckard
 Prints on dark backgrounds. Making G. E. Matthews
 Pulley frame L. S. Lachman
 Pulley. Sheet metal R. H. Bowen
 Pulp articles. Apparatus for making M. L. Keyes
 Pulp screening machine W. H. Crosby
 Pump. Cross head J. G. Fairbanks et al
 Pump. Rotary G. H. Ellithorpe
 Punch. Leather J. E. Cooper
 Punching bag A. F. Burt
 Punching machine. Portable M. Weixler
 Puzzle E. G. Jensen
 Radiator connection. Sheet metal H. W. Nowell
 Radio active matter and making same H. Lieber
 Radio active organic matter and food. Preserved H. Lieber
 Rail fitting M. Ventschger
 Rail joint R. M. Williams
 Rail joint A. C. Shand
 Rail joint C. E. Labady
 Rail system. Protected third I. C. Thorne
 Rail tie F. X. Harrison
 Rails. Clamp and key plate device for fastening G. A. Demarest
 Railway brake and chair J. H. McGunne
 Railway brake. Automatic J. Britz
 Railway cross tie S. Hoagland
 Railway crossing G. W. Willebrands et al
 Railway. Electric L. W. Pullen
 Railway frog W. Wharton, Jr
 Railway. Pleasure J. H. Goodfellow
 Railway rail E. Hayward
 Railway rail chair S. B. Brown
 Railway rolling stock. Side bearing for G. H. Wood
 Railway signal A. G. Wilson
 Railway signal and gate J. G. O. & I. D. Combs
 Railway switch adjuster. Automatic L. C. Brown
 Railway system C. Mehrling
 Railway ties. Construction of concrete A. C. Mather
 Rake C. Idly
 Razor handle A. W. Slovin
 Razor. Safety B. Kiam
 Receptacle supporting attachment A. J. Gerhardt et al
 Refractory material and making same G. C. Glynn
 Refractory material. Manufacturing G. C. Glynn
 Ribbon runner R. Culbreth
 Roasting furnace F. J. Falding
 Rock facing. Method of A. L. Rich
 Roofing and siding material F. D. Jacobs
 Rotary engine T. W. Moore
 Rotary engine W. W. Wheeler
 Rotary motor C. H. Bardenwerper
 Ruler. Tailor's buttonhole S. I. Clark
 Saddle. Harness W. P. Sawyer
 Safe. Circular door M. Mosler
 Safe or vault actuating locking means H. D. Hibbard
 Safe or vault actuator locking mechanism H. D. Hibbard

Safe or vault H. D. H. Hibbard
 Safe or vault actuator locking means H. D. Hibbard et al
 Safe or vault bolting mechanism H. D. Hibbard
 Safe or vault bolting mechanisms. Dogging mechanism for O. W. Bedell et al
 Sales slip form W. F. Beck
 Sanitary trap J. W. McAuliffe
 Sash antirattler. Window F. Kling
 Sash fastener. Rapid release L. Pearce
 Sash holder. Window E. G. Abell
 Savings, and safety deposit box. Time A. Nelson
 Saw E. E. Bartholomew
 Sawing machine. Log C. E. Brown
 Scaffold O. Schwerin
 Scarf pins, &c. Guard for H. Rohrdantz
 Screen G. L. Ogle
 Screen cover. Table S. Burrell
 Screen sizer or separator. Submerged J. M. Callow
 Screw driver or kindred tool W. S. Thomson
 Seal. Can S. B. Townsend
 Seal. Self locking E. Tyden
 Sealing means for envelopes, &c B. R. Dyer
 Seed dropper and planter B. F. Kennedy
 Seeding machine. Broadcast C. M. Sester
 Separator liner. Centrifugal E. Nylen
 Separators and means for cleaning same. Division device for centrifugal D. T. Sharples
 Sewer trap, &c., mold G. H. Taylor
 Sewing machine driving gear M. Margolin
 Sewing machine stitch forming mechanism. Button R. L. Lyons
 Sewing machine thread cutter R. L. Lyons
 Sharpener. Scissors C. H. Windsor
 Sheave. Self lubricating J. E. Gilchrist
 Shocking machine R. Oliver
 Shoe K. Engel
 Shutter fastener O. D. Anderson
 Sight finder G. Henderson
 Sign N. B. Wood
 Sign. Illuminated W. F. Johnson
 Signal mechanism J. C. Waldo
 Signaling device. Selective C. H. Noath
 Signaling system. Block E. G. Stuckey
 Snow shovel F. E. Hooper
 Sole. Boot or shoe A. & T. Leadbeater
 Soles. Manufacture of boot or shoe A. & T. Leadbeater
 Sound box needles. Device for securing B. L. Rinehart
 Sound producing device R. Hope-Jones
 Spindle and bobbin connector F. W. Saworski
 Spinning mechanism A. L. Mathewson
 Spring G. L. Harvey
 Spring clasp R. H. Welles
 Square R. A. Breul
 Square. Carpenter's J. R. Simpson
 Stacker. Straw J. Fahrney
 Steam boiler L. Rhodes
 Steam boiler H. W. Aitken
 Steam engine. Multiple expansion vibratory A. Benedetto
 Steam generator A. Philippe et al
 Steam trap J. W. Lytton
 Steel or iron plate. Coloring T. O'Brien et al
 Stitch separator and welt indenter S. J. Wentworth
 Stock regulator. Automatic E. F. Stewart et al
 Stone cutting apparatus W. C. Quinlen
 Stool. Step A. A. Smith
 Stop motion for cloth take up rolls F. O'Donnell
 Stove. Gas A. L. Gibson
 Stovepipe thimble E. Finch
 Stovepipe thimble and clamp H. W. Remick
 Suit case corners. Machine for making F. F. Ivins
 Surgical pad H. O. Sommer
 Sweeping compound A. Getz
 Switch stand R. E. Broyles
 Spring P. J. McElroy
 Spring W. F. Traves
 Tape making machine F. J. Anet
 Teaching device. Music M. L. Quinn
 Telegraphic relay E. Ducrotet
 Telegraphy. Aerial I. F. King
 Telephone exchange registering apparatus D. A. Yoder
 Telephone switchboard. 2 pats. C. T. Mason
 Telephone transmitter H. P. Clausen
 Threshing machine concave and cylinder J. F. Berndt
 Threshing or similar machines. Leveling device for W. Collins
 Tire L. F. Braine
 Tire R. W. Ferguson
 Tire brake J. Dempsey
 Tire. Pneumatic E. B. Workman
 Tire. Pneumatic G. Devoll et al
 Tire tightener. Vehicle wheel R. F. Fraizer
 Tire. Vehicle L. C. Cummings
 Tobacco leaf sizing machine A. R. Tiffany
 Toilet case E. J. Milligan
 Tool. Electric reciprocating P. Centner
 Tool. Extracting J. B. Fladby
 Tool. Pneumatically actuated R. Temole
 Tool post C. W. Grant
 Top J. M. Fultz
 Towing machine E. Dalglish
 Toy E. P. Lehmann
 Traction engine B. B. Stauffer
 Traction wheel W. A. Bangs
 Trap. Non-siphonable self scouring G. Cody
 Tread. Safety T. P. Farmer
 Trestle W. J. Muttart
 Truck H. S. Merrell
 Tube expanding and compressing machine. Hydraulic A. T. Pope
 Tug. Hame J. S. Cusson
 Turbine. Compound marine J. Wilkinson
 Turbine controller mechanism I. Wilkinson
 Turbine controller mechanism. Marine J. Wilkinson
 Turbine engine 2 pats. E. S. Farwell
 Turbine engine A. Wahle
 Turbine engine F. Einfeldt
 Turbine. Fluid pressure R. N. Ehrhart
 Twisting and doubling machine. Yarn J. S. Verlenden
 Type bar and support J. Winsor
 Type writer N. L. Anderson
 Type writer word registering device R. Allen
 Valve E. E. Slick
 Valve. Automatic H. S. Pinkerton
 Valve. Plug H. Kieren

Valve. Pressure reducing E. M. Bournouville
 Valves. Operating device for internal combustion engine inlet and ignition J. W. Seal
 Vapor burner L. Rhodes
 Vaporizer G. Beaumont
 Vehicle running gear G. H. Jones
 Vehicle speed controlling apparatus. Motor driven J. H. E. Goetze
 Vehicle steering gear F. A. Law
 Vehicle steering head A. F. Madden
 Vehicle wheel W. R. Fasey
 Vehicle. Wheeled D. Sharnan
 Veil pin F. A. Curry
 Vending machine L. J. Burdick
 Ventilating device R. Taylor et al
 Vertical boiler T. Suzuki
 Viscosimeter F. A. Courtois
 Vise. Parallel bench G. B. Taylor
 Voting machine J. B. Mahana
 Wagon box W. A. Melrose
 Wagon brake W. H. Weber
 Wagon brake C. J. A. Machut
 Wagon. Dumping I. R. Morgan
 Wagon. Dumping D. S. Watson
 Wagon skeleton frame A. L. & C. H. Dudley
 Walls. Apparatus for the construction of plastic D. W. Bovee
 Warp clamo R. Mauchline
 Washboard H. M. Haas
 Washing machine mechanical movement W. Sweet
 Washer cutter W. H. Mohr
 Watch balance J. A. Freund
 Watch band remover A. Ellis
 Water page C. R. Elliott
 Water heater and tank system. Domestic J. J. Blackmore
 Water motor L. D. Falconer
 Water motor I. R. De Bord
 Well bottom packing. Oil W. H. Downing
 Well drilling machinery W. Ackerman
 Well strainer. Oil or water 2 pats. F. I. Getty
 Wheel C. M. Green
 Wheel clamp G. F. Fields
 Winding or unwinding goods. Device for J. S. Harrison et al
 Windmill regulator. Automatic C. F. Knothe
 Window screen O. A. McFadden
 Window screen D. T. Peters
 Window screen H. E. Southworth
 Woodworking machine attachment D. W. Shollenberger
 Wool. Treating sheep's A. Kann
 Wrench H. J. Pawling
 Wrench P. C. Thayer
 Writing machine pedestal F. W. Hutchings
 X-ray meter T. P. Hall

DESIGNS.

Badge. Base ball register A. A. Hendrickson
 Belt. Lady's M. Martin
 Book cover W. M. Rhoads
 Cork extractor case R. B. Gilchrist
 Lamp shade. Incandescent electric H. Forger
 Mantel F. A. Broadbent
 Pillow sham N. Naja

Canadian Patents

Canadian Patents may now be obtained by the inventors for any of the mechanical inventions named in the foregoing list, provided they are simple, at a cost of \$30 each. If complicated the cost will be a little more. For full instructions address Inventive Age Publishing Co., 918 F Street N. W., Washington, D. C.

Foreign patents may also be obtained in certain other countries.

FREE!

Send us 2 cents to pay for postage and we will mail you a valuable copyrighted book, "How to obtain Patent, Caveat, Trade-Mark and Copyright Protection, with Decisions in Leading Patent Cases" entirely free of charge. Address:

INVENTIVE AGE PUBLISHING COMPANY,
 (Dept. P.) WASHINGTON, D. C.

PATENTS

Send Your Business Direct to Washington
 Saves Time and Insures Better Service.

Caveats,
 Trade Marks,
 Copyrights
 and
 Designs.

My office is close to U. S. Patent Office. FREE report as to patentability made. Personal attention given—TWENTY-FOUR YEARS PRACTICE. Book "How to Obtain Patents," etc., sent free. Patents procured through E. G. Siggers receive special notice, without charge, in the—

INVENTIVE AGE

Illustrated Monthly—Seventeenth Year.
 Terms, \$1.00 a Year.

E. G. SIGGERS, 918 F STREET, N. W.,
 WASHINGTON, D. C.

THE VARNISHES OF THE ITALIAN VIOLIN-MAKERS OF THE 16th, 17th, AND 18th, CENTURIES, AND THEIR INFLUENCE ON TONE.

By GEORGE FRY, F. L. S., F. C. S.

Experts who have had constant opportunities for studying the varnish on old Italian instruments have, without exception, accepted the theory that it is an oil-varnish colored to suit individual taste, although in no single case have their own descriptions of its appearance been found to support this conclusion: various reasons and excuses have been suggested why modern violin-makers have been unable to reproduce it.

The explanation of the mystery which is now offered is that the old violin-makers used, as the constituents of their varnishes, the natural products of trees (conifers) and plants (flax) growing in their immediate vicinity, abundant and easily procured; that they were simple varnishes composed of resin and turpentine, or of these two substances and linseed-oil: that the various apparent colors were due to optical effects naturally arising from variations in the details of the preparation of the varnishes: and that the differences in their physical qualities arose from the same causes.

The book contains an appendix giving the details of the composition of varnishes which have been made and used for covering musical instruments and for other purposes.

STEVENS AND SONS, Limited,
 119 & 120 Chancery Lane, London

YOUR NAME, BUSINESS and ADDRESS on a neat Rubber Stamp with pad and ink mailed for 20c. I. A. Durham Co., Corry, Pa.

Magic Rheumatic Cure!

It absolutely does cure. It is not a cheap remedy but it is a cheap cure. Mark the distinction! There are a thousand remedies to one cure. This is a CURE. It costs \$2.00 a bottle, and is worth \$20.00 to any sufferer. Sold only by our authorized agents or direct of us. Send for circular. Agents wanted.

MAGIC CURE CO.

R. 313-315 Dearborn St. Chicago.

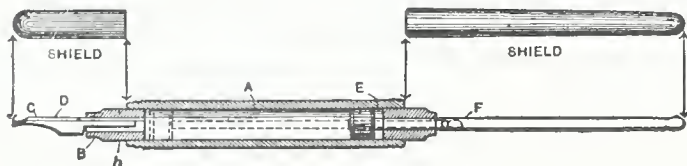
Look At Our Unprecedented Premium Offers !
To Old And New Subscribers Alike.

The "POST"

SELF-FILLING AND CLEANING FOUNTAIN PEN.

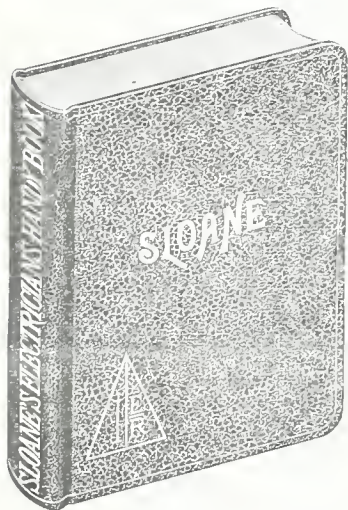
No Filler. No Soiled Fingers. No Lost Time. Simple and Perfect.

THIS IS ITS CONSTRUCTION.



Price \$2.00.

Including one year's subscription to
The INVENTIVE AGE AND PATENT INDEX.



ELECTRICIAN'S HANDY BOOK

By T. O'CONOR SLOANE,
A.M., E.M., PH.D.

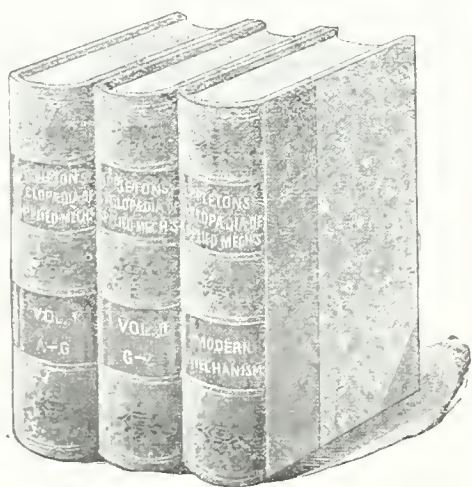
Handsomely Bound in Red Leather,
with Titles and Edges in Gold.
Pocket Book Style.

800 Pages. 500 Illustrations.
Price \$3 50.

Including one year's subscription to
The INVENTIVE AGE & PATENT INDEX.

Appleton's Cyclopedia of Applied Mechanics

Edited by PARK BENJAMIN, Ph.D., LL.B.
A Magnificent Set in Three Volumes Fully Illustrated.



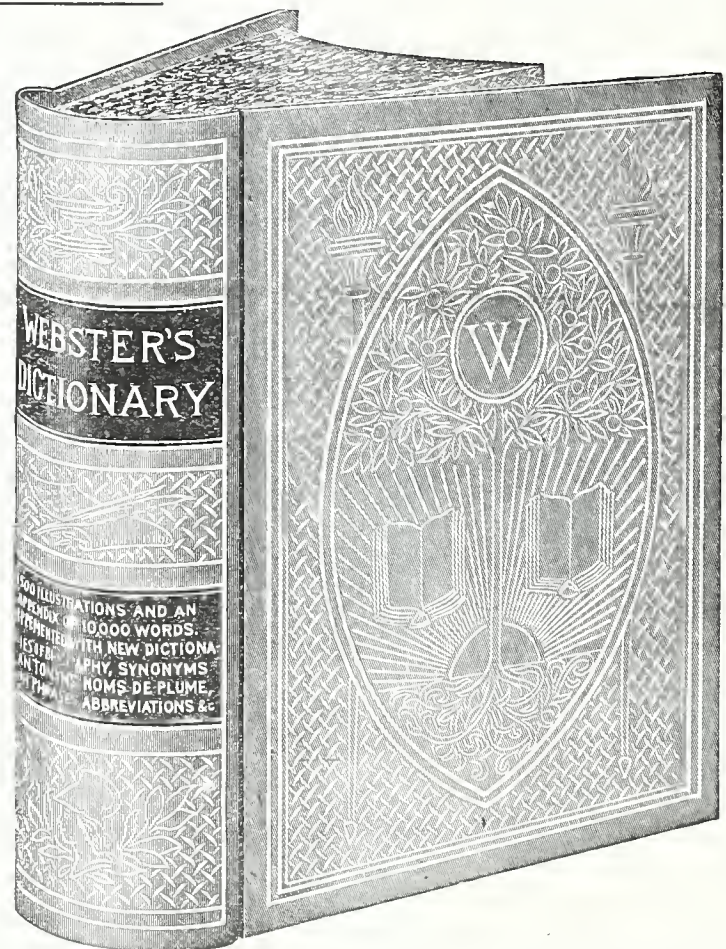
EACH VOLUME 10 x 7 x 2 INCHES. WEIGHT 20 LBS.

SPECIAL PRICE \$12.

Including one year's subscription to The Inventive
Age & Patent Index.

SEND FOR OUR FREE CATALOGUE OF BOOKS FOR INVENTORS,
AND MECHANICS.

Address: THE INVENTIVE AGE PUBL'G CO., 918 F St., Washington, D. C.



1540 Pages; 1500 Illustrations; Full Library Sheep
Binding; Dennison's Patent Index; Size, 4 x 9 x 10
Inches; Weight eight pounds.

Price \$2.50

With one year's subscription to
The Inventive Age & Patent Index.

...A...

Complete Electrical Library

By PROF. T. O'CONOR SLOANE.

5 Volumes,

1300 Pages,

Over 450

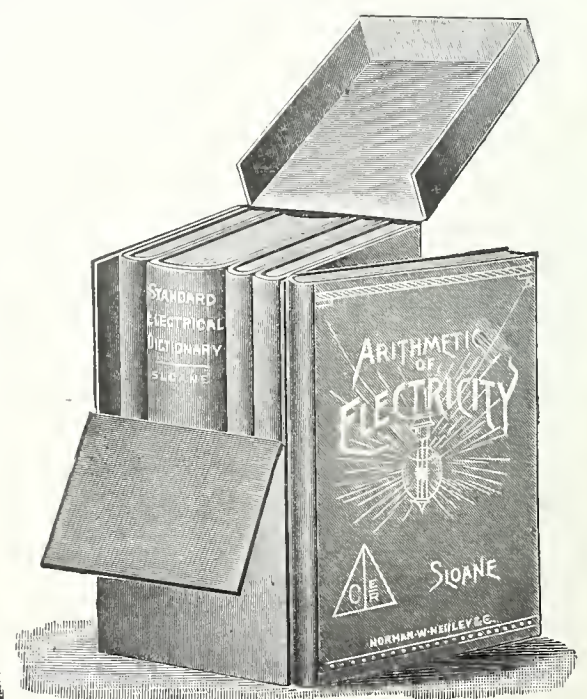
Illustrations.

A \$7.00

Library for
\$6.00,

Including
one year's
subscription
to

The Inventive Age & Patent Index.



A JOURNAL
OF MANUFACTURING
INDUSTRY

THE Inventive Edge

AND
PATENT INDEX.

AND SCIENTIFIC PROGRESS.

SEVENTEENTH YEAR.
No. 6.

WASHINGTON, D. C.—JUNE, 1905.

SINGLE COPIES 10 CENTS.
ONE DOLLAR A YEAR.

ELECTRICITY AS APPLIED TO AGRICULTURE.

By LEON RAMAKERS.

ALTHOUGH electricity has for some time past been used for municipal and industrial purposes, thus far it has received but little attention at the hands of agriculture. In countries endowed with natural hydraulic power, usually situated at some distance from the towns, the electricity required for industrial purposes has been transmitted by overhead wires on poles which are as numerous as they are unsightly, over the fields and through the villages without being tapped there. However, of late years, it has been recognized by such villages and small towns that they could advantageously utilize some of the power passing along overhead wires, for lighting purposes. Many localities, even those remote and situated in the mountains, have passed at a bound from the

distant date, a veritable revolution, which will greatly improve methods of agriculture, and give rise to a prosperity hitherto unknown. Electricity, it may perhaps be objected, is expensive and not easy to generate, but as there are many methods which can be successfully employed, the large and small consumer can be considered as adequately catered to. The cost of erecting a power-plant is much less in the country than in the town, and the subsequent working expenses are very small in comparison. There is no lack of the requisite sources of energy for the generation of electricity, many being even quite gratuitous. Among these latter we may mention the wind, which, by means of suitable motors, may be made to drive dynamos charging reserve



ELECTRIC PLOW WITH DOUBLE MOTOR.

smoky oil lamp to the electric incandescent light, which is now to be seen not only in the drawing-room of the castle, but also in the farmhouse, the barn, and the stable.

Besides lighting the farmhouse, electricity might well be employed in the various farming operations requiring the aid of motive-power, thus doing away with the hand labor of farm servants and the services of the horse, the latter being better employed for transporting produce than for operating machinery.

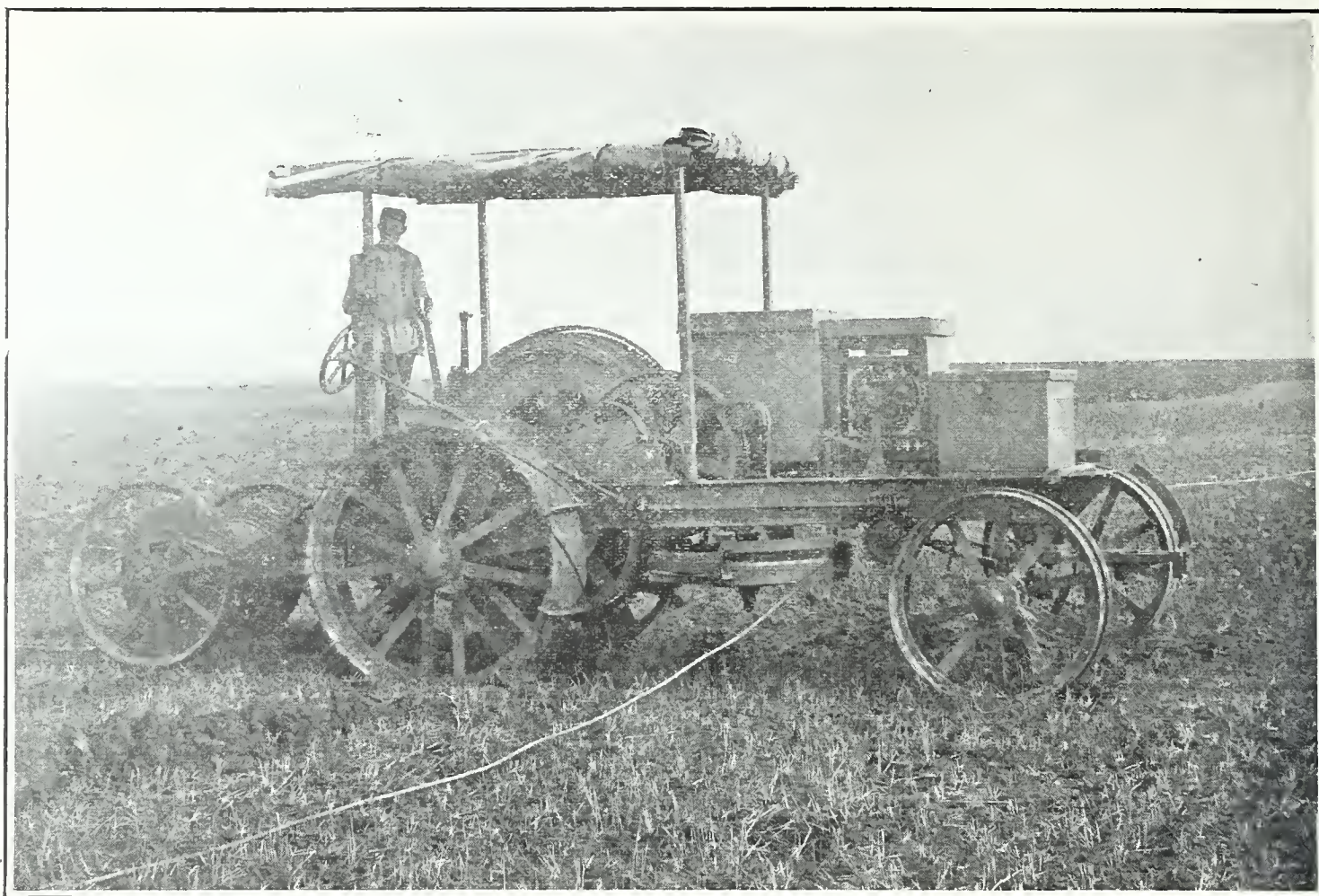
Judiciously employed electricity seems called to create, at a more or less

accumulators for use when the weather is calm; and then there are waterfalls which are already being turned to account far and wide. Failing these there are steam engines already in use in agricultural districts, and in connection with other industries more or less indirectly related to agriculture—oil motors, spirit motors, etc.

Electricity can easily be used for many different purposes in agriculture, but pre-eminently for cultivation. In the opinion of M. E. Guarini, who has made a special study of this subject, the new science of electro-culture affords a vast field for progressive movement. This investigator states that the effect

of light on plants is due to simple electric phenomena and that, consequently, light can be replaced by electricity; though some effective method of suitably applying electricity has still to be discovered. The possibility of this, has, nevertheless, recently been fully confirmed by the experiments made by Professor Selim Lemstroem who, by electrifying plants at night, has found that the current produced the same effect on these plants as the light of the sun. From experiments made to a slight extent in other countries, it has been found that by electrifying seeds their germination was notably accelerated. For instance, some peas treated with electricity germinated in two and a half days instead of in four, haricots in three days instead of in five, barley in two days instead of five. Although the beneficial effects of electricity upon plants has now been established, its method of operation has not yet been thoroughly elucidated. That it is a complex matter we are aware. Electricity electrolyses and decomposes the salts contained in the soil, and forms others which can be more easily assimilated by the plants. It increases vitality and thus favors the exchange of gases between the leaves and the atmosphere, promotes respiration, the fixing of the carbon, and the nutrition and multiplication of the cells: finally it influences the circulation of the sap by imparting more energy to the osmose, and thus forces the nutritive juices into the capillary vessels in the tissues of the leaf. It is, of course, understood that electroculture does not obviate the necessity for tilling and manuring the soil. In connection with the former, however, the farmer may also obtain valuable aid from electricity, and, in this connection, we may turn to its more practical application to farming operations.

Tilling the soil with the aid of cattle is expensive; the use of steam engines is not much cheaper, and it is difficult to put into practice. Electric plows, however, have been constructed which give excellent results. These plows are of two types, one having a single and the other a double motor. Several other models have been constructed but have since been abandoned. The single motor plow consists of four parts; first the



MOTOR FOR ELECTRIC PLOWING.

plow which has usually two series of three, four, five, and even six shares. One series serves for the outward journey and the other for the return. Either the one or the other set is put into action by drawing the plow backwards and forwards between two points. The plow then travels from one side of the field to the other, or, to put it more exactly, from the windlass to the point of support by means of a wire cable. The motive truck carries one or two drums driven by an electro-motor. The

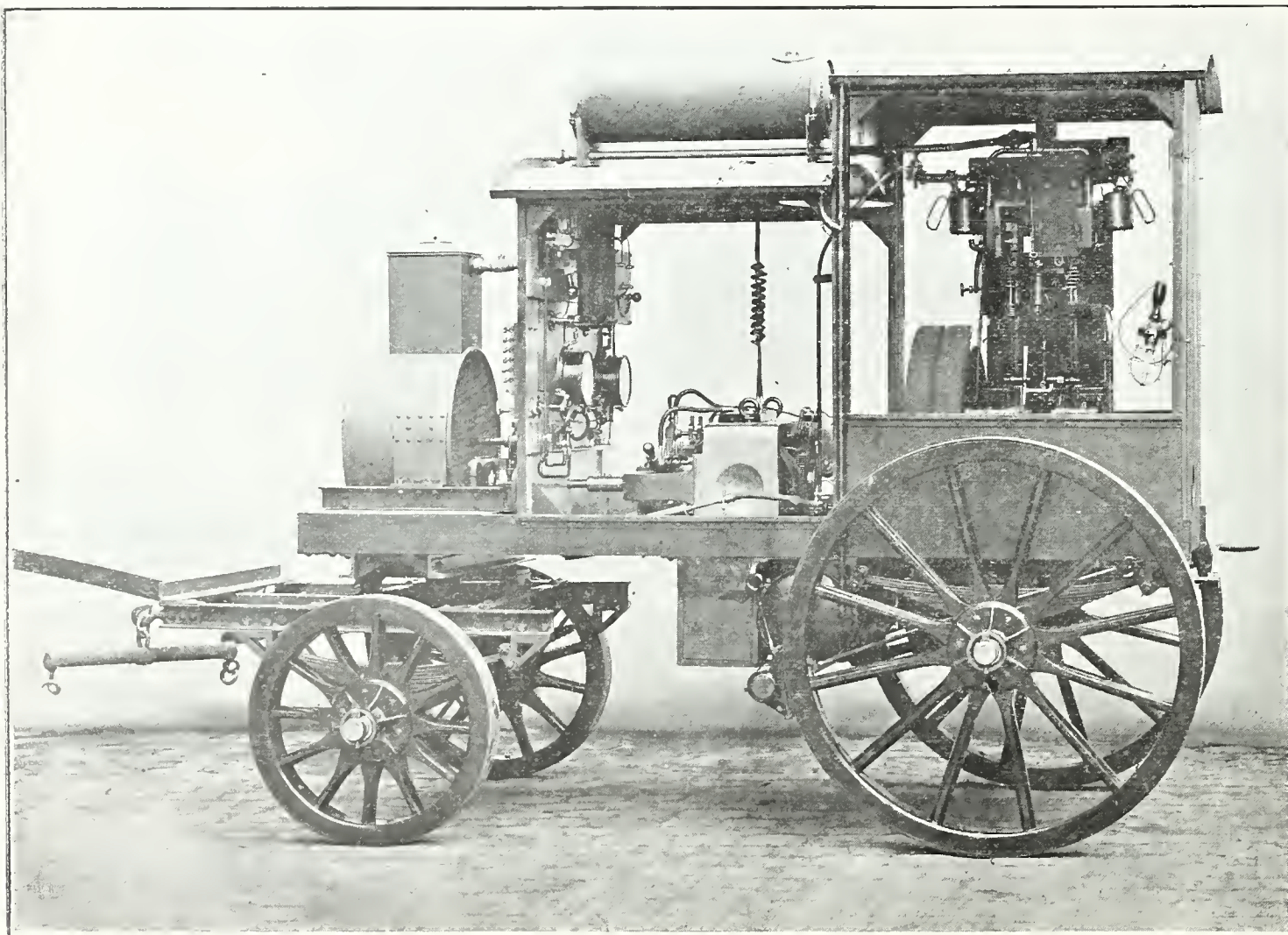
point of support is formed by means of a truck fitted with cramp-irons. The motive truck and the truck with the cramp-irons move automatically at each furrow, the extent of their movement varying according to the width of the furrow desired.

The double motor system differs from the above merely in that the cramp-iron truck is replaced by a second motor truck.

The first system is more suitable for work of slight depth in light soil, the second being used for depths of from 1 ft. to 1 ft. 4 ins. in compact ground. These machine plows are constructed for a tractive effort of up to 4,400 lbs., and for working speeds of up to 3-5 6 ft. per second: they are fitted with electromotors of from 40 to 60 h. p. according to the speeds for which they are required. The dimensions of the motors are such that they will produce the maximum tractive effort of 4,400 lbs. with the speeds stated.

Electric tillage is already in use on several large estates in Germany, Austria, Hungary, and Italy, and notably on the farm of Quednau and on the estate of Count Vittorio Asarta at Praforiano. On this latter estate, when experiments were being made, three acres were treated in ten hours. This plant, which has now been increased, is still at work and is giving very interesting results. With one of these electric installations in Austria, 3 acres 50 roods are treated in a work-day of ten hours, the depth of the furrows being from 9 $\frac{1}{4}$ —13 $\frac{1}{2}$ ins. With surface working, 5 acres 70 roods can be tilled daily. The average practical speed is from 3 to 5 ft. per second.

Although electric plowing enables considerable saving to be effected in comparison with plowing by the aid of cattle, it requires the investment of a considerable amount of capital, so that it has not much of a future before it as regards small farms. This draw-



TRANSPORTABLE ELECTRIC LIGHTING SET.

back, however, may be overcome by using electric plows on several farms and paying so much for their hire. When used on large estates, such as those mentioned above, directly the crops have ripened, threshing machines, winnowing machines, etc., come into use. All these require motive power, and this can be obtained more cheaply, more conveniently, more easily and with less danger from electric motors than from any other type of machine. However, to make them doubly valuable, it should be possible to transport them with ease into the vicinity of the machines they are to operate. To this end they are permanently fixed upon a wooden base, if they are of small size, or upon a small wagon, if they are too large to be carried by men. When made in this way, one or two motors will suffice to deal with work upon a large scale, provided, of course, that they be attended to in an efficient manner to enable them to keep continually at work driving one machine when another is not in use.

As will be seen from our illustrations, which we reproduce by the courtesy of Messrs. Siemens-Schuckert, Berlin, which was one of the very first firms to take up this new branch of electricity, all agricultural machines are adapted to be driven by electricity. Among others we may mention—besides threshing machines, chaff cutters, carrot and beetroot cutters, &c. winnowers, centrifugal cream separators, pumps of all kinds, oil cake crushers, mills of all types, elevators, sheep shearing machines, churns, separators, fans, grindstones, etc.

Certain machines, such as threshers, etc., require the full output of a 5 to 20 h. p. motor; others, of small size, only take from 2 to 3 h. p. and, in this case, three or four can be driven by the same motor by the use of a countershaft.

Electro-motors can be very well utilized for all operations requiring power on a large estate. They can even be turned to account in the kitchen, and, on many estates, they are to be found driving coffee mills, and sewing machines. Rooms, kitchen utensils, flat irons, etc. are further heated by electricity.

In conclusion it must not be forgotten that a great advantage is to be derived by using electric light on farms because, as it not only obviates all risk from fire provided the wiring has been properly laid, but it also enables work to be undertaken in the open air—a matter of vital importance when climatic conditions dictate a continuance of operations without delay of any kind.

Subscribe for the Age.

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the INVENTIVE AGE, which publishes a list of all patents issued each month, and the current decisions of the courts in patent, trade-mark and copyright matters. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

PROGRESS IN PANAMA.

SOME of the great factories of the United States are very busy just at present, preparing plans and specifications to be submitted with bids for the approval of the engineers who are to supervise the construction of the Panama canal. Whether the New World Waterway is made with several locks or on a so called tide level, much of the work will remain the same. This important question, in fact, will not have to be decided for some years, and the preliminary labor can go on without regard to ultimate change of plans: and the President's action in eliminating a red-tape, cumbersome commission, and confining the supervision

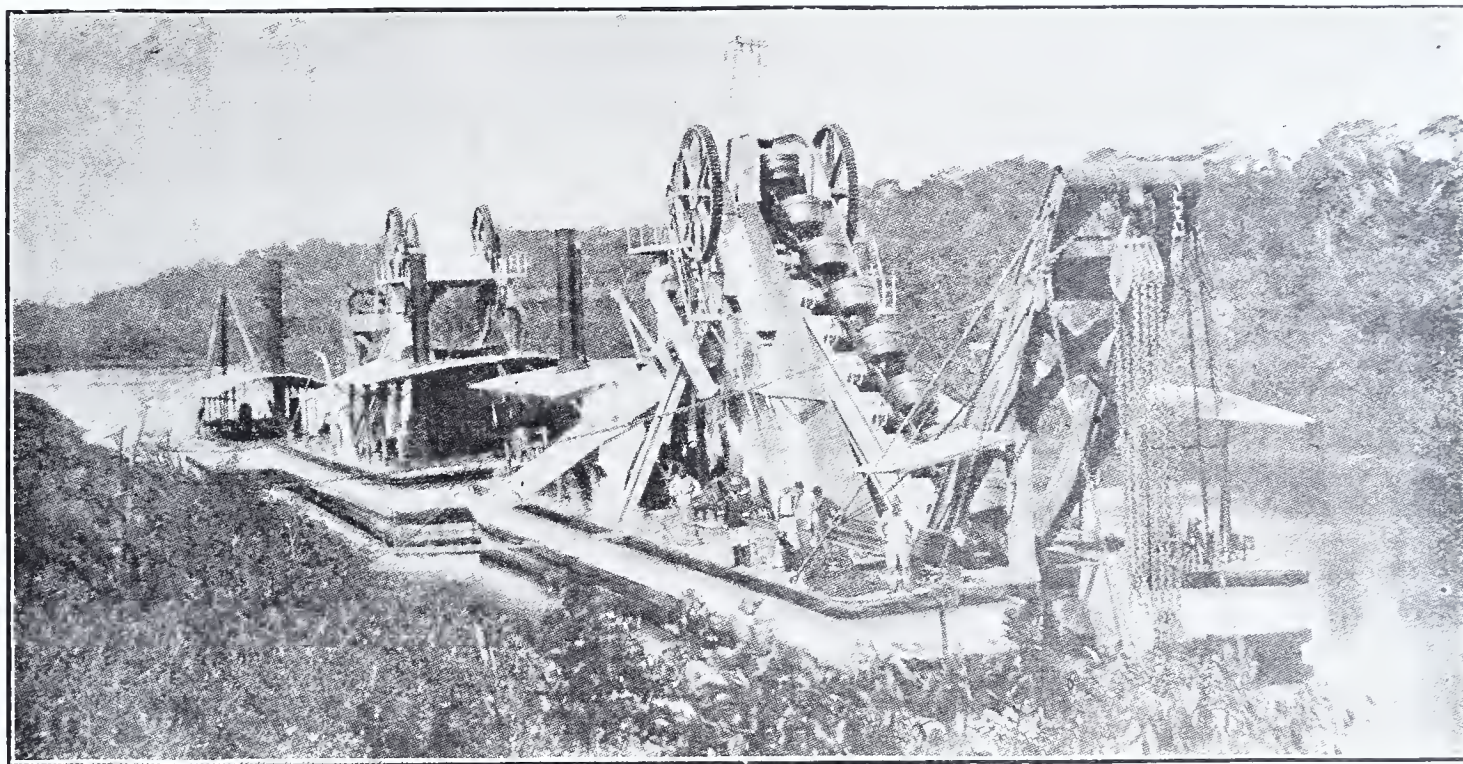
ment that the French machinery cost approximately \$20,000,000, and yet it is today fit, for the most part, only for the scrap heap. One of the dredges that it will yet be possible to use is shown herewith.

In the preliminary work, which will be completed to the uttermost detail before excavations are begun, much time has to be spent in the selection of the best machinery. Preparations of that kind are now under way in our great manufactories, and within a few months some of this apparatus may have been built and shipped to the isthmus.

Take, for instance, the steel cable

Experts at Pittsburg and at Schenectady are designing colossal excavating machinery. De Lesseps thought that his Panama apparatus marked a signal advance, in the magnitude of its dimensions, over the machinery used for digging the Suez Canal: but the French appliances will be as pygmies in comparison with those that will be shipped from the United States this year. Much manual labor will, of course, be inevitable, but the greater part of the more difficult and exhausting labor will be done by the arms of steel. Electricity and compressed air enable us to drill more rapidly, to convey power to greater distances, and to work far more economically than in the days when steam power was the sole reliance.

Among the preparatory works is the building upon the isthmus of huge repair and machine shops. There will



THE FRENCH CONTRACTORS DREDGING THE CHAGRES RIVER NEAR GORGONA.

of the construction to the practical engineers, will greatly accelerate progress.

Had the United States bought the Panama Canal or undertaken that work through treaty negotiations similar to those entered into by France twenty-five years ago, no one would have dared to suggest that the canal might possibly be completed within five years from the beginning of construction work, or that the preparation for actual labor would require not more than eighteen months. When de Lesseps contemplated the digging of the big ditch, he knew of no power-producing energy except the steam engine. It is pointed out that the subway in New York city has involved problems almost as difficult of solution, from a scientific and engineering point of view, as the Panama waterway, and comparatively more costly. Had the contractors been compelled to rely, as de Lesseps was, exclusively upon steam power and manual labor, the subway system would have required at least ten years for its completion, instead of the four which have been sufficient. It is the use of electricity and of compressed air that have revolutionized methods in this line of labor. How complete this revolution is, is shown by the state-

ways, that is to say, the apparatus necessary for hoisting and hauling the excavated material to the dumping places. These cable ways will be really steel suspension cable bridges, stretching from steel towers to their appropriate places and to the dumping ground; and upon these towers will be placed motors, by means of which the excavated deposits will be removed to the dumps. Scores of these cable ways will be shipped, and when set in their appropriate places, will practically stretch from ocean to ocean. Great economy of time and of manual labor is made possible by these modern appliances. The operator has to do little more than touch a button and turn a switch, and the apparatus, yielding to the prodigious force of the electric current, does all the rest of the work.

When these preparations are completed and the construction plant is established, the isthmus will be brilliantly lighted at night for the whole forty miles from the Atlantic to the Pacific. By means of electric illumination, darkness will be converted into day, so that the engineers can work continuously, dawn and twilight, noon and midnight, marking the hours when shifts of mechanics and laborers are made.

be forges and manufactories that will compare in size and in the quantity of work turned out with those in the United States. The engineers will not trust to the factories in the home country for repairs or the rebuilding of apparatus, as that would take too long.

Almost all of the apparatus now being designed for use at Panama, and especially the power producing engines, are to be made so that it will be possible to employ as fuel either coal or oil. In some places upon the isthmus, auxiliary reliance may be placed upon the water power that is to be developed. Fuel constitutes an embarrassing problem for the engineers, since it is expensive to bring coal from the United States, and involves serious waste of time. Fortunately, Texas seems to have solved the problem, and it is expected that tramp steamers will carry from the oil fields of the Lone Star State, constant supplies of the cheapest fuel available, and good fuel too.

The celerity with which the canal can be dug with the aid of these modern appliances is indicated by the estimate of the chief engineer, that with 100 steam shovels installed, with a complete system of tracks serving them, a yearly record of 30,000,000 cubic yards of excavation may be reached without requiring a greater output per shovel or greater speed in working than has already been attained: in other words, without allowing for the development in this line of effort that may naturally be expected, if the ratio of progress of past years is maintained.

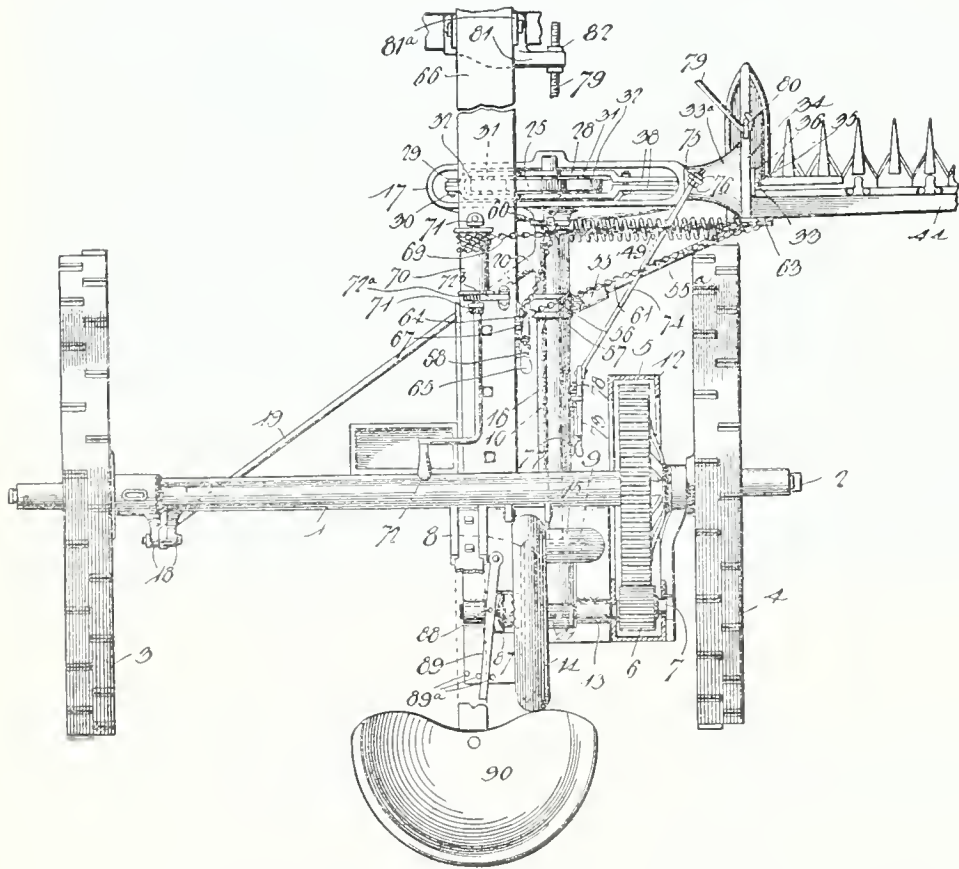
CLEVER NEW PATENTS.

MOWING MACHINE.—SINGLE-TRACK ELEVATED RAILROAD.—IRONING TABLE.
BIT OR CUTTER.

Mowing Machine.

A mowing machine having a number of advantageous features has been patented by Mr. Alvin M. Threewitts, of Centerville, Indiana.—The cutter bar actuating mechanism is so constructed that all lost motion is absorbed and entirely eliminated, while the same is positive in operation, thereby preventing clattering and injurious strains and jars, due to looseness between the parts. There is also employed a novel form of adjustment between the casing or boxing of the cutter-bar actuating mechanism and the shoe, this connection being such that the finger bar can be tilted or locked without changing the position of the boxing of the cutter-bar actuating mechanism. Another feature of importance is a novel form of balancing spring for the finger bar, this spring serving to hold the bar yieldingly the required distance from the ground, thereby permitting such vibratory motion of the bar as may be requisite, and, at the same time, preventing any violent whipping or jumping action under the action of the spring. As a result of these various improvements, a mowing machine is secured which is very durable and thoroughly efficient, wherein there is little liability of the parts becoming broken or injured, and, at the same time, the machine can be inexpensively manufactured.

In operation the machine is driven over the ground and the bevel-gear 8 locked in mesh with gear 9; whereby motion is imparted to the shaft 10, thence to the cam 25 imparting by its movement rapid reciprocatory movement to the driver frame 28 and the latter to the cutter-bar. By reason of the fact that the cam 25 is borne upon equally throughout its entire periphery by the thrust bearing wheels 32, positive motion will be imparted to the cutter bar without any lost motion. Should the angle of the cutter-bar with relation to the ground not be correct, this defect may readily be remedied by operating the tilting lever



73, even while the machine is in operation, and under the same provision, should it be desired to lift the finger-bar above the ground, it will only be necessary to operate the lever 65 for this purpose by swinging the same backward and downward parallel with the tongue. When the machine is to be driven from the field, the finger-bar should be elevated at right angles to its normal position by turning the crank-shaft 72 to wind the chain 69 upon the drum, the boxing moving upon the sleeve 16 as an axis when the finger-bar is thus moved.

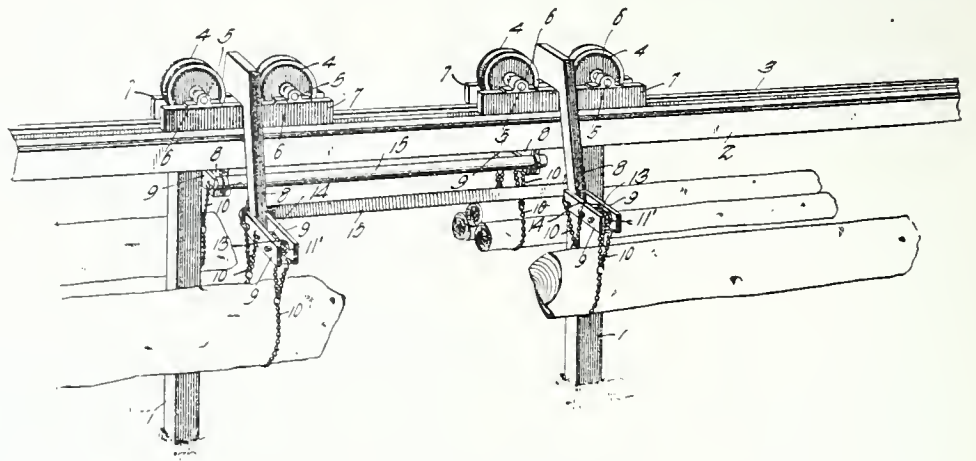
Single-Track Elevated Railroad.

An elevated railroad of novel construction has been devised and patented by Mr. Robert E. Terry, of Mobile, Ala.—This invention has relation generally to single-track elevated railways and trucks for carrying passengers, lumber, logs, or any other kind of freight, and it has special reference to railways which are adapted to have a truck or car run thereon constructed to carry a load on each side of the rail.

It is the object of the invention to provide such improvements in single-track elevated railways and their trucks as will simplify their construction and enhance their durability; a further object being to improve the means connected with the truck proper and the freight carried thereby as will equalize the weight or strain brought to bear on each side of the truck-wheels, and so maintain the wheels in vertical position on the track, and the truck in practically evenly-balanced position, though the weight of the loads on the opposite sides of the track may vary.

In carrying out the invention, a single-track rail is employed elevated on stringers, and on the same are mounted two connected trucks, each of which is provided with two wheels, the wheels being arranged one in advance of the other. An arm 8, on each side of the track, is connected at its upper end with

the same on a line extending between the wheels, and this arm is extended down and outward at an inclination with respect to the vertical sides of the wheels, and substantially parallel with the axis of rotation thereof. Flexible



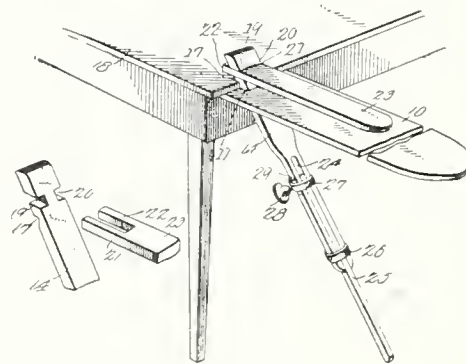
means 10, are connected at different points with these arms and are adapted to support the freight thereof. Thus, in the illustration, chains are shown in which logs or timber can be swung. 15 designates a coupling-pole arranged upon, and connected with, the lower ends of the arms 8 of a pair or series of trucks carrying the same or different loads; and 16 designates coupling-poles connecting the trucks to form trains of trucks on the track. The coupling-pole 15, in addition to connecting the trucks, may assist in balancing said trucks during the loading and unloading operations.

Ironing Table.

A new ironing table is the subject matter of a patent granted to William O. Schellhamer, of Salina, Colorado. This invention relates to portable ironing boards or supports, adapted to be temporarily attached to a table or other support, and has for its object to improve the construction of such devices and produce a board which may be quickly adjusted to tables or other supports of various heights, being provided with an auxiliary board for ironing sleeves and the like. A table member 10 is provided having a recess in one end. A leg member 14 is hinged between its ends to the table member at the base of the recess, and is projectible there-through, being provided with a transverse recess in its rear side for engagement with the support, and with oppositely disposed recesses in its side edges in advance of the recess. The auxiliary or sleeve-board 22 is provided with longitudinally disposed spaced arms, which detachably engage in the side recesses and is thereby supported above the main board.

The lower portion of the leg member 14 is provided with a longitudinal recess 24, in which an extension leg member 25 is slidably disposed.

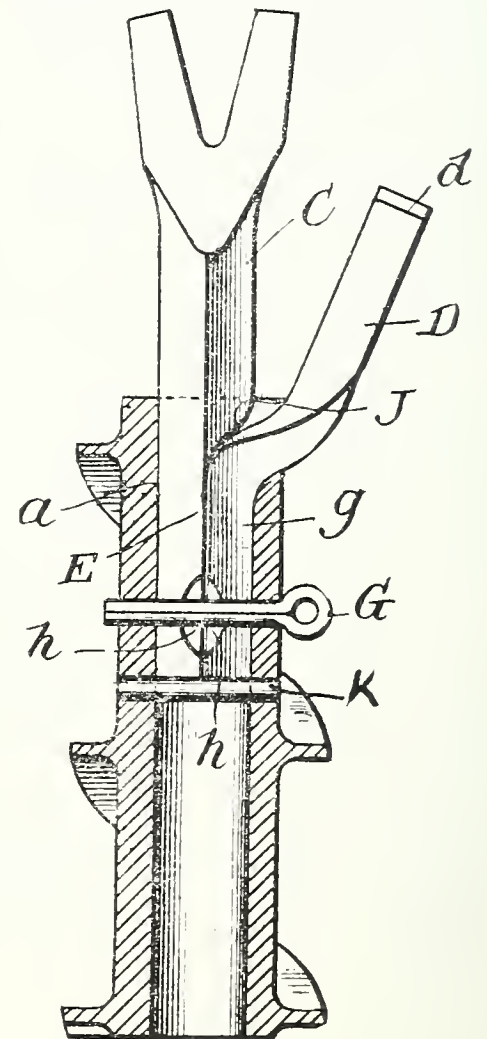
Attached to the leg member 14, near its lower end, is a lower guide-band 26, through which the extension member 25 moves; and attached to the member 25, near its upper end, is a similar upper guide-band 27, the latter band likewise inclosing the leg member 14 and carrying a clamp-screw 28,



bearing against the leg member 14, as shown. By this simple means, the extension leg member 25 may be readily adjusted within the recess 24 in the leg member 14, and firmly supported at all points of the adjustment. A wear-plate 29 will be inserted between the band 27 and the leg member 14 to receive the thrust of the clamp-screw and prevent abrasion of the leg member.

Bit or Cutter.

An important improvement in a bit for use in cutting coal, rock, and the like, is the subject matter of a patent recently granted to Mr. George H. Bittenbender, of Plymouth, Pa. The object in view, is the simplifying and perfecting of a device of this character, whereby it may be made much more effective in operation and the wearing parts are detachable for the purpose of convenient repair or renewal. The device consists of a main shank formed with a spiral rib thereon, and having an angular socket alongside which is a lateral recess. A main bit is employed having a cut-



away shank substantially one-half of which occupies a position in the socket, and an auxiliary bit, outstanding from the main bit, has a portion located in the socket alongside the cut-away shank, the auxiliary bit being provided with a shank of the same shape and size as the shank of the main bit. A simple cotter pin holds the bits in place and permits of their ready removal.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

Supreme Court of the United States.

HARLEY v. THE UNITED STATES.

Decided May 8, 1905.

1. PATENT—INVENTION BY GOVERNMENT EMPLOYEE—USE BY GOVERNMENT—COM- PENSATION.

Where an employee of the Government submits an invention which he has made and patented at his own expense to his superior officers and it is adopted and used by the Government, the inventor supposing that he would receive compensation and the superior officers supposing that he would not expect or demand compensation, Held that an action in the Court of Claims to recover compensation cannot be sustained.

2. SAME—SAME—SAME—DEMAND FOR COM- PENSATION.

An employee of the Government who permits his patented invention to be used by the Government without protest and without specific demand for compensation and without agreement as to compensation, is not entitled to recover in the Court of Claims.

3. SAME—SUIT AGAINST GOVERNMENT— JURISDICTION OF COURT OF CLAIMS.

The jurisdiction of the Court of Claims in suits founded on contract is limited to those cases where there is "a coming together of minds" and excludes those contracts or obligations that the law is said to imply from a tort.

GOSS PRINTING PRESS CO. v. SCOTT.
(Circuit Court, D. New Jersey. February 4, 1905.)

1. PATENTS—ASSIGNMENT OF INTEREST—IN- FRINGEMENT—SUIT FOR DAMAGES— PARTIES—VIOLATION OF INJUNCTION.

Where in a suit for infringement of letters patent an interlocutory decree was made for an injunction and an account, and thereafter the complainant assigned to third persons its entire right, title and interest in and to the letters patent, and took from them a mere license, non-exclusive, and non-assignable except to the successors or assigns of the business then carried on by the complainant, held, (a) that the complainant could not, in the suit as it then stood with respect to parties, recover profits or damages on account of infringement occurring after the execution of the assignment, or proceed against the defendant for a violation of the injunction by reason of such infringement; (b) that to secure an account, in equity, of profits or damages for such infringement, it would be necessary to resort to an original bill or a bill of a supplemental nature brought by the licensee and assignees as co-complainants; (c) that in order that proceedings might properly be had for violation of the injunction, by reason of such infringement while the complainant remained a mere licensee, resort should be had to a bill of the latter character.

2. SAME—VIOLATION OF INJUNCTION—CON- TEMPT.

Where alleged infringing machines were made and sold by the defendant under letters patent granted to him after the issue of the patent in suit, and before constructing them, he consulted counsel and an expert and was advised by them, and believed that such machines would not embody or contain the subject-matter of the patent in suit, he should not, in view of his innocence of intention, although an infringer in fact, be punished in contempt proceedings, where they are in no sense remedial, but solely of a punitive character.

LIBRARY BUREAU v. FRED MACEY
CO., Limited.

(Circuit Court, D. Massachusetts. February 13, 1905.)

The Williams patents, Nos. 623,857 and 624,597, for improvements in card records, consisting in placing an additional index tab on reversible record cards, designed to be symmetrically arranged in groups in their index order—the additional tab having the same index character on the back as the other tab, but marked in ink of a different color—are void for lack of invention, in view of the prior art.

SAMPSON & MURDOCK CO. v. SEAVER-
RADFORD CO.

(Circuit Court, D. Massachusetts. February 2 1905.)

1. COPYRIGHT—INFRINGEMENT—USE OF COPYRIGHTED DIRECTORY.

1. A compiler of a general directory has the right to use a prior copyrighted general directory both to verify the results of his own work, and to show him and direct him to the persons to whom it may be worth his while to call.

2. SAME.

One who is compiling a general directory of a city has the right, after making his own canvass, to take a part of the names and addresses contained in another copyrighted general directory, go to the original sources of information, ascertain how far the existing facts concur with the statements of the first directory, and then to print and publish the result as his own, abandoning what is not found, and changing what his investigation shows should be changed, and printing without change what he has, by means of his own investigation, found to be correct at the time such investigation was made; and such right is not lost by the fact that a person, in going to the sources of information, takes with him memoranda of names and addresses copied from the first directory, changing them when his investigation shows they should be changed to correspond with the facts, and checking them as correct when they prove to be correct.

3. SAME—INJUNCTION—SCOPE.

The master found on a reference in a suit to enjoin infringement of complainant's copyrighted directory, that defendant had copied into its directory certain specific matter from complainant's directory, including certain fictitious and erroneous names and statements, and had also transferred to all parts of its directory from complainant's directory many names, and information connected therewith, which it did not obtain by its original canvass or from original sources; but such infringing matter was not specifically set out in the finding, except sufficient thereof, taken at random from defendant's book, to support the finding, and to indicate its character and the means by which it could be identified. Held, that such findings entitled complainant to an injunction, but that, it not appearing that the objectionable matter could not be expunged, the court would not decree a general injunction against the sale of defendant's directory, but the same would be limited to restrain the sale only of any copy containing any of the infringing matter, including that indicated in such general finding.

4. SAME—RIGHT TO INJUNCTION—PROOF OF DAMAGES.

Proof of damages is not essential to entitle a complainant to an injunction restraining the infringement of a copyrighted publication.

WESTERN ELECTRIC CO. v. NORTH
ELECTRIC CO. et al.

(Circuit Court of Appeals, Sixth Circuit.
January 12, 1905.)

1. PATENTS—SUIT FOR INFRINGEMENT— PLEADING.

In a suit in equity for infringement of a patent the defenses of lack of invention and noninfringement cannot be made by plea, but only by answer.

2. SAME—DEFENSES PROPERLY MADE BY PLEA.

A defense to a suit for infringement on the ground that the patent bears date more than six months later than the notice given to the applicant or the allowance of the application may properly be taken by plea.

3. SAME—VALIDITY—ISSUANCE MORE THAN SIX MONTHS AFTER NOTICE OF ALLOW- ANCE.

The provision of Rev. St. § 4885 [U. S. Comp. St. 1901, p. 3382], that "every patent shall bear date as of a day not later than six months from the time at which it was passed and allowed and notice thereof was sent to the applicant or his agent," is directory merely, since the same section allows the applicant six months after notice in which to pay the final fee; and where, by reason of the accumulation of work in the office, the patent cannot be prepared and signed after such payment within the six months, and it is therefore reallowed and issued on a later date, it will not be held void for that reason, at least at the instance of a private party in a collateral proceeding.

4. SAME—VALIDITY AND INFRINGEMENT— SPRING JACKS FOR TELEPHONE SWITCH BOARDS.

The Scribner and Warner patent, No. 488,033, for a telephone switch, based in part on the device of the prior Scribner patent, No. 507,553, was not anticipated by such patent, and discloses invention. Also held infringed as to claims 1 and 3.

6. SAME.

The Scribner patent, No. 552,720, for improvements in telephone switches, was not anticipated, and discloses invention. Also held infringed as to claims 2 and 4.

7. SAME—INVENTION—NEW COMBINATION OF OLD ELEMENTS.

While the mere assembling in a new organization of parts of old structures to perform the same functions in their new place that they did in the old is not invention, yet where they are so taken, and are organized in a new and useful manner, so as to produce a more beneficial result, there may be invention; and where the combination displays the exercise of intuitive skill and genius beyond that possessed and exercised by those well skilled in the practice of the art, and the discovery is of something new and useful, invention should be recognized.

BUCHANAN et al. v. PERKINS ELEC-
TRIC SWITCH MFG. CO.

(Circuit Court of Appeals, Third Circuit.
February 4, 1905.)

PATENTS—VALIDITY AND INFRINGEMENT— INCANDESCENT LAMP SOCKETS.

The Perkins patent, No. 626,927, for an incandescent lamp socket, was not anticipated, and is not for a mere aggregation of parts, but covers a true combination of old elements into a new and complete unitary structure in such a way as to produce a new and highly beneficial result, and to show invention. Claims 3, 4, and 9 also held infringed.

MOSSBERG et al. v. NUTTER et al.

(Circuit Court of Appeals, First Circuit.
January 26, 1905.)

1. PATENTS—CONSTRUCTION OF CLAIMS.

The claims of a patent are to be fairly construed in the light of the specification and drawings, so as to cover, if possible, the invention, and thus save it, especially if it be a meritorious one.

2. SAME—INFRINGEMENT—BICYCLE BELLS.

The Eriksen patent, No. 491,012, for a bicycle bell, was not anticipated, and the device shown discloses patentable invention, and represents a distinct advance in the art as compared with prior bells. Claims 1 to 4 construed, and held infringed.

SOCIETE FABRIQUES DE PRODUITS
CHIMIQUES DE THANN ET DE MUL-
HOUSE v. GEORGE LUEDERS & CO.

(Circuit Court, S. D. New York. December 22, 1904.)

1. PATENTS—VALIDITY—PRODUCT OF PRE- VIOUSLY PATENTED PROCESS.

A patent for the product of a process is void where the same product had previously been produced by other processes.

2. SAME—ARTIFICIAL MUSK.

The Baur patent, No. 451,847, for artificial musk, is void in view of a disclaimer limiting it to the product of the process of patent No. 416,710 to the same patentee.

UNITED STATES MITIS CO. v. MIDVALE
STEEL CO.

(Circuit Court, E. D. Pennsylvania. August 18, 1904.)

1. PATENTS—PROCESS—INVENTION.

The patentability of a process is to be determined by its effect. However simple, it may disclose invention if it produces an improved result.

2. SAME—SCOPE OF INVENTION—ERRON- EOUS THEORY—BENEFICIAL RESULTS NOT CLAIMED.

Even where a theory is erroneously advanced by an inventor in his specifications to explain a patented process, the scope of the invention is not to be narrowed thereby, so to preclude him from laying claim to

other beneficial results. It is the process, not the theory, which is patented, and the inventor is entitled to all the benefits legitimately to be derived therefrom.

3. SAME—METALLURGICAL PROCESS—USE OF INHERENT AND WELL-KNOWN NAT- URAL PROPERTIES OF REAGENT.

Where a metallurgical process consists not simply in making use of certain natural properties of a deoxidizing agent such as aluminum, but in making use of them at a certain time, in certain quantities, and in a certain way, it cannot be objected, to a patent for such process, that it seeks to monopolize properties which are inherent and well-known.

4. SAME—INFRINGEMENT—ASSIGNMENT OF DIFFERENT OBJECT—EVASION.

Where a patent deals with a metallurgical process, with regard to which there is not only a difference of opinion, but some obscurity, it would invite evasion and destroy the value of the patent by which the process is protected, if, while pursuing its terms, the charge of infringement could be successfully met simply by assigning the attainment of a different object.

5. SAME—VALIDITY AND INFRINGEMENT— PROCESS FOR MAKING WROUGHT IRON AND STEEL CASTINGS.

The Wittenstrom patent, No. 333,373, for a process for making wrought iron and steel castings, consisting of the addition of a small quantity of aluminum to the iron or steel after it has been fully melted, and just as it is about to be poured into the mold, the effect being to render the casting more solid and free from cavities, without injury to its quality, was not anticipated, and discloses invention, and the patentee is entitled to all the benefits legitimately to be derived from the practice of the process, including the use of aluminum in such casting as a deoxidizing agent, when used in the quantities, in the way, and at the time set forth. Also held infringed.

6. SAME—MARKING OF PATENTED ARTICLES —PROCESS PATENT.

Rev. St. § 4900 [U. S. Comp. St. 1901, p. 3388], requiring that articles made under a patent shall be so marked, is not applicable to the case of a process patent, and the omission is not a bar to recovery for infringement where the defendant has been notified, and continues the infringement in disregard of such notice.

DECKER v. SANFORD.

(Circuit Court, N. D. New York. February 8, 1905.)

PATENTS—INVENTION—BASEBOARDS AND WAINSCOTING.

The Decker patent, No. 346,899, for baseboard and wainscoting construction, consisting essentially in fastening the carpet strip or bottom molding to the floor, and not to the baseboard, and using, if desired, a top molding extending below and in front of the top of the baseboard, and fastened to the wall only, and not to the baseboard—the purpose being to cover by such moldings the spaces caused by the shrinking of the baseboard and the floor—is void for lack of patentable invention, and also for anticipation in the prior art.

HAARMANN-DE-LAIRE-SCHAFFER CO.
v. LEUDERS et al.

(Circuit Court, S. D. New York. November 9, 1904.)

1. EQUITY—ORIGINAL BILL IN THE NATURE OF SUPPLEMENTAL BILL.

Where a bill to restrain infringement of a patent by an assignee conformed in form and substance to the requirements of an original bill in the nature of a supplemental bill, it was not objectionable on the ground that it was a supplemental bill only.

2. PATENT—INFRINGEMENT—ACTION BY AS- SIGNEE.

Where, pending a suit to restrain infringement of a patent, it was assigned, and the assignee filed an original bill in the nature of a supplemental bill, and claimed no title through persons not complainants in the original bill, but who joined in the assignment, the defendants could avail themselves of any equity or defense which has arisen since the original bill was filed, or which could be urged against the new complainant, but which did not exist against the original complainant; but in all other respects the assignee was entitled to the benefit of all the proceedings in the original suit.

MECHANICAL INVENTIONS AND DESIGNS

Patents for which have been procured
through the Patent Soliciting Office
of E. G. Siggers, Patent Lawyer,
Washington, D. C.

Nels L. Nelson, inventor; S. M. O. Bangen, assignee, one-third interest, Crookston, Minn. Straw Stacker.—This invention relates to pneumatic straw stackers, and its object is to permit dust and chaff from the screens to pass through the fan or fans, and at the same time to prevent heavy articles, such as broken cylinder teeth, stones, etc., from breaking the fans. The fan casings are provided at opposite sides with boppers having bottom openings, which permit heavy articles to pass out through them and thus are prevented from coming in contact with the fans.

Thomas A. Howes, Naperville, Ill. Curry Comb.—The curry comb of this patent is one of the best which has been devised, and it consists of a combined curry comb and trowel, the handle of the trowel also constituting a handle for the curry comb, which may be used either with or without the handle. The trowel provides convenient means for removing sweat or other matter liable to clog or gum a a curry comb, and is also adapted to be employed for cleaning the hoofs of an animal and for removing dirt from harness. The curry comb is provided with a socket for the blade of the trowel, and the handle of the latter projects beyond the curry comb.

Patrick Maginnis, Kimball, Nebr. Extension Trough or Flume.—The feature of the present invention is a joint or splice designed for connecting two sections of a trough or flume, and adapted to present a smooth inner surface to avoid retarding the passage of the water, and thereby reduce the friction to a minimum. The sections of the trough or flume are engaged by inner and outer clamping members, the outer clamping member being provided at its inner face with a groove or channel to receive the overlapped ends of the sections and the inner member, which has its inner or upper face flush with the inner faces of the sections. The ends of the inner and outer members are secured to a supporting bar by adjusting devices, which control the clamping action. By this construction, the sections of a trough or flume may be rapidly connected without the use of rivets, solder or analogous fastening means, which permanently secure the sections together, and require much time and labor in order to produce anything like a smooth water-tight joint.

Stephen E. Burke, Butler, Indiana. Three patents. Wind Mill Oiler, Swivel for Wind Mills, and Automobile Climber.—The Burke-Bollmeyer Manufacturing Company of Wauseon, Ohio, have purchased the patents for the wind mill oiler and the swivel. The wind mill oiler is in practice mounted upon the top of a wind mill, and communicates with the various bearings to be lubricated, and is adapted to deliver a predetermined quantity of oil to the bearings when desired. The distributing pipes, which conduct the oil to the bearings of the wind mill, extend from an upright tube, which is arranged within the oil reservoir. The oil carrier operates within the tube, and conveys the oil from the reservoir to the distributing pipes. Operating mechanism is connected with the carrier for raising it, and a spring automatically returns the operating mechanism to its initial position and permits the carrier to descend by gravity.

The swivel of the second patent is a device of great merit, and is used in connection with the pull-out wire of a

wind mill and the operating wire of a wind mill lubricator, and it is adapted to prevent those wires from being twisted by the rotation of the head of the wind mill. The swivel is hollow to provide a passage for one of the wires, and it is composed of two sections provided at the top and bottom with means for the attachment of the other wire. One of the sections of the swivel is cup-shaped to receive the other member, which is provided with a flange for engaging the bottom of the cup-shaped member. The sections are adapted to rotate on each other, and it is impossible for the wires to become twisted.

The automobile climber of the third patent is an attachment for horseless vehicles, and enables the wheels to grip the ground firmly, whereby they are prevented from slipping when traveling over icy roads, and when ascending or descending steep inclines. A plurality of gripping members or shoes are arranged at intervals on the tread of the tire, and they extend inwardly beyond the rim, and are connected by flexible means located between the rim and the hub of the wheel so as to be out of contact with the latter. The device is designed to be carried within a horseless vehicle, and it is capable of being quickly applied to and removed from the wheels, so that it may be used when necessary, and stored away when not required.

Hamilton D. Dodd, inventor, Adams Run, S. C.; D. Lawrence Smith, assignee one-half interest, Walterboro, S. C. Rice Cultivator.—This cultivator is designed particularly for use in Georgia, North and South Carolina, where the soil is hard, dry and crusty, and where, after the rice is planted, the land is flooded and maintained in such condition until the rice is about two inches high. The draining of the land produces a hard dry crust, and the cultivator is adapted to break the crust and stir the soil without covering the rice. The cultivator teeth are located alternately at opposite sides of the plow-beam, one of the teeth being inwardly bent and extended to a point directly beneath the beam, and the other teeth being outwardly curved and offset different distances from the center of the beam. The teeth are interchangeable, and a sweep is detachably secured to the beam in rear of the teeth.

Jefferson Jeffery, New Castle, Pa. Hose Coupling.—The object of this invention is to provide a quick action coupling of very simple construction that will permit either end of a section of hose being coupled with either end of another section, or with a plug or nozzle, thereby saving time, trouble, and the necessity of using a reducing piece, or the turning of sections end for end. Another object is to provide means which will automatically bridge the joint between the two coupled members, and thereby prevent leakage. The coupling consists of coacting members, each of which has an outstanding flange and a longitudinally disposed lug terminating in a projecting intumed hook. The lug has a seat in which is arranged a pivoted spring-pressed latch having an intumed bill, that is arranged to engage the outstanding flange of the other member. A sleeve slidably fitted in each member has a shoulder or abutment portion against which the water strikes, so that the sleeve is automatically moved across the joint between the members.

James Powers, inventor; New York, N. Y., Henderson P. Childress, assignee, Brooklyn, N. Y. Pad Support. Two patents.—The patents cover two different features of a pad support which is intended to be secured to a desk telephone instrument. It consists of a novel clamp which is secured to the standard of the instrument and has an outstanding journal stem on which is rotatably mounted a pad holder. The pad

holder is held in different positions by a simple thumb nut threaded upon the outer end of the stem and bearing against the holder. The holder itself is of peculiar construction, being stamped from sheet metal, and having flanges around its lower portion that embrace and hold a pad. The upper end of the holder is looped over to form a holding tongue that engages over the top of the pad and yieldingly secures the same in place.

Florian J. Martin, Milwaukee, Wis. Two patents.—Both of these patents cover machines for numbering, price-marking, and the like. In the earlier one, a casing is employed in which are housed a plurality of type-wheels, combined with type-wheel actuators and indicators, the latter being composed of two oppositely disposed sectors, concentric with each other. One of the sectors is provided with teeth, meshing with gear wheels carried by the printing wheels, while the other has characters corresponding with those on the type-wheels. The type-wheel actuators and indicators move through an arc concentric to that traversed by the type-wheels, so that when a character on the outer sector or indicator is brought opposite a suitable pointer, the operator will know that the corresponding character on the type-wheel is in position to be brought into contact with the platen. Beneath this mechanism is provided means of a novel nature for inking the type and impressing the paper placed beneath the same.

The second patent covers improvements in that type of machines which may be made to number consecutively, and which can be changed to either duplicate or repeat a number indefinitely. The invention relates more particularly to mechanism for effecting the changes, and briefly stated consists of the usual pawl member having teeth that coact with the numbering wheels. In one end of this pawl member is located another pawl member movable with respect thereto, a spring being interposed between the members for urging the same in opposite directions. In the first-mentioned pawl member is pivoted a latch that engages a series of peculiarly arranged shoulders. By placing the latch against the different shoulders, the numbering mechanism can be made to operate consecutively, repeat a number twice, or an indefinite number of times.

Calvin D. Marsh, Williamsport, Pa. Three patents. Sawing Machine, Vibratory Chip Breaker and Head Stock for Molding Machines.—All three of these patents, which cover important improvements in wood working machinery, have been purchased by the Hermance Machine Co., of Williamsport, Pa. The sawing machine of the first patent involves an ingenious arrangement in which the tightener frame operates only on the loose side of the belt, a rigidly supported pulley being arranged to receive the draft side of the belt, whereby the saw is driven at all times with the full power of the machine, and is effectually prevented from stopping when thrown quickly into a large piece of hard wood, thereby preventing loss of power, and enabling large material and hard wood to be sawed with the same facility as light material. The main frame of the machine is provided with a horizontal track, on which is arranged the wheels of a reciprocating carriage. The weighted oscillatory frame, which is pivotally mounted on the main frame, is connected at its top with the carriage and at its bottom with a treadle. The saw arbor is mounted on the carriage; the drive pulley is mounted on the main frame, and a guide pulley, which is located beneath the carriage, is also mounted on a fixed portion of the main frame. The belt extends from the saw arbor to the drive pulley, and its drive side or flight is

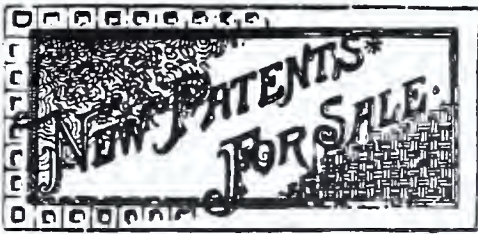
arranged on the guide pulley, whereby the drive side is maintained under a constant tension, and is prevented from slipping. The loose side or flight of the belt is engaged by the pulley of the pivoted tightener frame.

The second patent is directed to a chip breaker, which is provided with a peculiarly arranged coiled spring for holding it yieldably in engagement with a board, and for preventing it from being thrown out of such engagement by the rough uneven surfaces of the material. The chip breaker, which is hinged to the frame of the machine, is provided with upper and lower horizontal pockets, open at one end. A weighted horizontal lever is pivoted in the upper pocket, and is provided with a depending projection arranged opposite the open end of the lower pocket. The coiled spring is partially housed within the lower pocket, and rests upon the bottom thereof, whereby the expansion and contraction of the spring incident to the vibration of the lever and the chip breaker will operate to clean the pocket automatically of all sawdust entering it.

It is the aim of the third patent to improve the construction of molding machines, more especially the means for adjusting the head stocks or blocks, which carry the arbors of the cutter heads, and to enable the adjustment of the head stocks or blocks to be either slow or fast after the arbors have been set at the desired angle or inclination. The screws for adjusting the head stocks are provided with gears, which are adapted to mesh with a large intermediate gear. The intermediate gear is mounted on a slidable shaft, and is adapted to be moved into and out of mesh with the gears of the adjusting screws, and this permits the screws to be adjusted independently and simultaneously, and also enables the speed of the head stocks to be varied.

Albert W. Nance, Davis Mills, Va., and Thaddeus H. Nance, Bedford City, Va. Harness Buckle.—It is the aim of this invention to provide an improved buckle, especially adapted for connecting the crossed portions of a back-pad strap and a trace, to enable the latter to be supported at any elevation upon the former, and to permit the back-pad strap to be adjusted lengthwise of the trace, so as to be accommodated to animals of different sizes, and also to permit the shifting of the back-pad in the event of an animal having a sore back. The buckle has an open frame, and is provided with longitudinal and transverse ways. The longitudinal ways are spaced apart to receive and guide the reinforcing piece of a trace, and the latter is extended beyond the sides of the reinforcing piece to engage the longitudinal ways. The back-pad strap is arranged in the transverse ways, and spaced studs are provided for engaging the back-pad strap and the extended side portions of the trace.

Godfrey Arpin, Clark, S. Dakota. Casket Holder.—This patent covers an ingenious arrangement of clamping devices for securing coffins and caskets of different sizes to the interior or inner faces of display cabinet doors, which are adapted to be opened or swung down to a horizontal position for displaying the coffins and caskets. Each display cabinet door is provided at one end with a foot rest or clamp having a pair of spaced L shaped brackets, which are connected by a bar or jaw capable of adjustment on the brackets, whereby it is adapted to engage a casket above the bottom molding. The casket is held near the other end by a pair of side clamps mounted on L-shaped brackets, which are adjustable towards and from each other. The side clamps are inclined to clear the bottom molding of the casket, and are adjustably secured to their L shaped brackets. When the door is closed, the casket is arranged in an upright position on the inner face of the door and is concealed.



Advertisements inserted in this column for 15 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—Patent No. 784,461, dated March 7, 1905. Automatic Fire Extinguisher. One of the best of its kind. Safe, simple, cheap, and durable. Will sell outright, or by states, or lease on royalty, or trade in part for land. Address, J. D. Williams, Box 814, Plymouth, Ind. aug

FOR SALE—Canadian Patent No. 90,678. Cultivator for hilling sweet potatoes and other crops. Best in the world. Will sell outright for cash. Address, William H. Page, Swedesboro, N. J. aug

FOR SALE—U. S. Patent No. 780,610. Non-refillable Bottle. Absolutely impossible to tamper with contents after being sealed. Simple of construction, effective, and practicable. Issued Jan. 24, 1905. Look it up and address, Wm. Gardner, Carberry, Manitoba, Canada. aug

FOR SALE—Patent No. 777,793, dated December 20, 1904. Music Chart. The easiest device so far invented. Anyone can learn to play in one day. It can be sold to nearly all piano and organ owners. The music charts sell \$1. per set; cost of manufacture per set two cents. Address, F. C. Kruschke, Berlin, Wis. aug

FOR SALE—Patent No. 783,413. Patent Cooling Apparatus, for cooling the walls of blast furnaces; also preserving the brick. Adapted to any vertical or inclined wall to protect the same against fire from adjoining buildings. The invention has been fully tested for two years. Will sell patent, or lease on royalty. Address, L. O. Brightbill, Glen Wilton, Va. aug

FOR lease on royalty—Patent No. 786,253. A clay digging agitator for hydraulic dredges. Increases their capacity forty to sixty per cent. Will cut up the stiffest kind of clay. Address, George Menger No. 519 Ashland Block, Chicago, Ill.; or J. G. Gillespie, Oak Harbor, Ohio. aug

FOR SALE—Patents No. 784,142 and 731,932. Patented March 7, 1905, and March 3, 1903. Automatic Weighing Apparatus. Can be attached to any grain spout or elevator. Will handle all granulated substances, and is accurate. Will sell state rights or U. S. outright, terms reasonable. Address, Mr. A. L. Buckland, Marietta, Minn. aug

Attention Inventors!

LISTS OF MANUFACTURERS FURNISHED.

We have increased our facilities for furnishing lists of manufacturers, and now cover every line of industry.

Our charge for each list is one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad will be inserted three times.

THE INVENTIVE AGE PUBLISHING CO., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.....

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

FOR SALE—United States, English, and German Patent just issued on a Combination Tool. Will become a standard tool. Splendid hardware specialty. Address, W. L. Cooper, Speigner, Ala. aug

FOR SALE—Patent No. 780,122, dated Jan. 17, 1905. Air Apparatus for Vessels. Address, Hans Nelson, Chippewa Falls, Wisconsin. jun

FOR SALE—Design Patent No. 37,343—14 years—issued February 14, 1905. Ornamental Christmas tree, parlor vine and flower support or stand. Useful in the home, also for decorating churches and halls. Send for booklet. Address, Miss C. J. Taylor, Carbon, Indiana. jy

FOR SALE—U. S. Patent No. 748,742, and Canadian patent No. 92,124. Hose Coupling. Will give to some reliable manufacturer on a royalty basis, or will sell cheap for cash. The quickest reliable coupling made. Can be coupled and uncoupled one hundred and fifty to two hundred times per minute. Address, J. Jeffery, No. 33 Barbours Place, New Castle, Pa. jy

FOR SALE or on royalty—U. S. Patent No. 732,740, Canadian patent No. 48,697. Shingle Guide. Great labor saver for carpenters. Handy, and cheaply manufactured. Does away with driving nails in roof. Write, Andrew Sivertson, Auburndale, Wis. jy

FOR SALE—Patent No. 758,225, dated April 26, 1904. Electric Engine for the operation of light machinery, such as printing presses, pumps, fans, etc. Will sell outright or lease on royalty plan. Address, Alexis Vanderbeck, Box 4, Roseland, Kansas. jun

FOR SALE—Patent on Safety Box. Intended for the safe keeping of valuable papers, jewelry, etc. When tampered with or molested will give alarm by blank shot or continuous ringing of bell, which cannot be stopped except by owner. For terms and general information address, T. C. McPherson, P. O. Box 504, Beaver Falls, Pa. jun

FOR SALE—Patent No. 767,007, dated August 9, 1904. Cultivator for hilling sweet potatoes and other crops. Best in the world. Write for circular. Address, W. H. Page, Swedesboro, N. J. jun

FOR SALE—U. S. Patents No. 737,941, dated Sept. 1, 1903. Valve Cut Off for Tanks; and No. 769,550, dated Sept. 6, 1904. Supply and Service Tanks. Will sell cheap for cash. Send me an offer. Will lease on royalty. Address, P. J. Leithausen, Defiance, Ohio. jun

FOR SALE or Exchange—Ten useful household articles, made from one 12-foot common ladder, viz: A 4-foot step ladder, a 6-foot step ladder; an 8-foot common ladder; a 10-foot common ladder; a 12-foot common ladder; also a wash tub bench, a clothes wringer and tub bench, a clothes rack, an ironing board and a very handy chair. Agents wanted. Write for terms and free circular, F. McNaughton, Raymond, Ill. jy

FOR SALE—Patent No. 776,007, dated Nov. 29, 1904. Bottle. All cash, or cash and royalty. Correspondence solicited. Address, Hilaire Vincent, 357 Amherst Street, Manchester, N. H.

FOR SALE—Patent No. 776,922, dated December 6, 1904. A new pump, windmill or hand power. Satisfaction guaranteed. Address, P. J. Leithausen, Clarendon, Tex. jun

FOR SALE—Patents No. 774,693, Steering Apparatus for Ships, issued Nov. 8, 1904; and No. 755,928, Heat Regulator, March 29, 1904. Address, John Peterson, Lake George, N. Y. dec 05

WANTED.

WANTED—A manufacturer in iron and steel to manufacture adjustable wheelchairs. Just the thing wanted for ages. Anyone can tighten them with a wrench without removing the wheel from the vehicle. Address, R. S. Cutter, Ochiltree, Texas. jy

WANTED—To buy patents, rights, or ideas of some new and useful article. Preferably one which can be manufactured and sold in connection with the bearing and mill supply business. Correspondence solicited. Address, F. Renville Company, Grand Rapids, Mich.

WANTED—Bids for manufacturing by machine, new dishwasher from mesh wire or perforated metal. Address, Box 305, Washington, Pa. jun

INVENTORS OF SHEET METAL, WIRE AND PLASTIC MATERIAL GOODS.

The Wiet-Goethe Company of Sacramento, California, owns the best tool room and plant on the Pacific Coast, for the manufacture of goods made from sheet metal, wire and plastic materials. It makes a specialty of the manufacture of patented articles only, and will be pleased to receive from inventors, particulars of articles of this character. The plant is fully equipped in every particular, and offers to the inventors an unusually good proposition. This will largely apply to men of small capital, who in this way, can command the services of a plant, which could not be duplicated for thousands of dollars. Address, Wiet-Goethe Company, Sacramento, California.

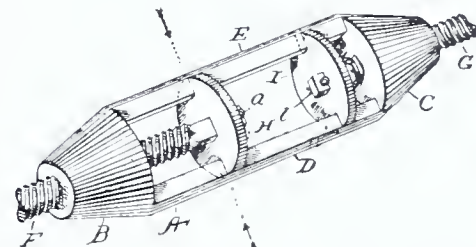
WANTED.

To buy an up-to-date Rotary Washing Machine Gearing that is covered by a strong patent. Address, S. B. P. Care "Inventive Age," Washington, D. C.

THE COWART SAFETY TURNBUCKLE.

Patented Feb. 16, 1904. Canada Protected.

FOR SALE.



Useful for car builders, steam shovels, ship builders and bridge builders. They will not work loose.

E. H. COWART,

PLEASANTON, CAL. jun.05

Drawings for Inventors.

If you want copies of the drawings of your patent, we can procure them at these prices:

12 copies, each sheet full size (8x13)	\$ 2 50
25 " " " " " "	3 50
50 " " " " " "	4 50
100 " " " " " "	7 00
500 " " " " " "	13 00
1000 " " " " " "	17 00

12 copies, each sheet reduced 1/3 (8 1/4 x 5 1/4)	\$1 25
25 " " " " " "	2 00
50 " " " " " "	3 00
100 " " " " " "	4 00
500 " " " " " "	7 50
1000 " " " " " "	9 00

These copies will be made by the photo-lithographic process, by the firm which formerly attended to the Patent Office work, and will be equally as good as the drawings accompanying your letters patent. Five hundred copies of your patent would cost you at least \$25. We can furnish 500 copies of the drawings, if contained on one sheet, for \$13 full size, or \$7.50, if reduced one-third, the same reduction as your letters patent drawings. Your valued orders solicited.

The Inventive Age Publishing Company, WASHINGTON, D. C.

A NEW BOOK FOR INVENTORS.

Patents and How to Make

Money out of Them

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trademarks and copyrights. It also tells accurately How and What to Invent How to sell Inventions, Place them on the Market, Interest Capital in them, and to successfully Promote a Stock Company. It also contains an index of forms worth double the price of the book, to any one interested.

ELEGANTLY CLOTH BOUND

GOLD STAMPED. \$1.00 Postpaid.

Sent with one subscription to AGE for \$1.75

Or will sell separately.

Address— The Inventive Age Pub. Co., 918 F St., N. W. WASHINGTON, D. C.

Thousands

of inventions in the field of Railway and Engineering are being patented every year.

The Railway and Engineering Review

carries more advertisements of patent attorneys than any other railway paper in North America.

For rates, address—

The Railway and Engineering Review, 1305 Manhattan Building, Chicago.

Bee-Keepers

Should all subscribe to

THE AMERICAN BEE-KEEPER

(Established 14 years.

50 cents per year.)

The best magazine for beginners. We will send it **Six Months on Trial for 20 cents.** Sample copy free.

Address:

The American Bee-Keeper, Falconer, N. E.

It is published by the

W. T. FALCONER, MFG. CO.

One of the oldest and largest makers of bee-keepers' supplies. Catalogue free.



The Inventive Age

AND PATENT INDEX.

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 618 F Street, N. W.,
WASHINGTON, D. C.

The INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND A HALF.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

The INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 15 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,
WASHINGTON, D. C.

Entered at the Post-office as 2nd class matter.

WASHINGTON, JUNE, 1905.

THE WORK OF THE PATENT OFFICE.

The Patent Office continues in about the same condition as last month. Few changes have been made. The total number of applications awaiting official action, including both new applications and amended applications, is 16,562. This is an increase of about 200 over the total number given in our last report.

Of the thirty-eight divisions of the Patent Office, there are seven which are now considering applications which were filed in the early part of May, thus being in arrears one month; there are fifteen divisions which are considering applications filed in April, thus being between one and two months in arrears; there are fourteen divisions which are considering cases filed in March, thus being between two and three months in arrears; while there is one division, having air and gas engines in charge, which is considering cases filed in February.

The trademark division reports over 3,500 applications awaiting action. It is generally believed that the trademark work will begin to fall off in a few months, though in all probability, the work of the trademark division will always be greater than it has been in the past, as more trademarks will be registered in the future, owing to the decrease in the fees and the protection afforded by the new registration law; but the work of the examining divisions which have charge of applications for patents, is not likely to decrease. On the contrary, now that summer is coming on, the usual period when thirty-day vacations are given, there is every likelihood of the work falling in arrears still more.

It is not difficult to determine the causes for this condition of affairs. While there are, in some of the divisions of the Patent Office, incompetents, shirks and drones, as a rule the men composing the examining corps are the hardest worked and the poorest paid of any of the officials under the government. An intimate acquaint-

ance with the examiners of the Patent Office extending over a period of many years, has given the writer a very high opinion of their ability, and as a class, they cannot be excelled in any department of the government for intelligent, faithful and conscientious attention to the business before them. One of the most serious disadvantages they labor under is the lack of room. In many of the divisions of the Patent Office, six or eight men are crowded in a single room without regard to laws of hygiene or any other consideration. Many of the men are required to work from nine a. m. to half-past four p. m. in rooms which receive the major portion of their light through artificial means. They are more like dungeons than work rooms. Many prisoners in jails have better rooms than some of the examiners of the Patent Office.

If the United States was an impoverished nation, we would expect that such conditions would continue without an effort at correction; but no such excuse can be presented, when it is remembered that the Patent Office has to its credit in the United States Treasury, several million dollars. The Patent Office is not only self-supporting, but it deposits in the Treasury to its credit each year several hundred thousand dollars. In this respect, it is unique. While we do not advocate injecting politics into this bureau of the government, it certainly seems that unless inventors band themselves together, like the old soldiers have done, and demand better facilities for the Patent Office Examiners, better pay, and more examiners, the present conditions will grow worse. Every one can do his part towards improving the situation, and you who read this article, can at least raise your voice and protest against it, and aid in every honorable way to bring about a radical reform.

TRADEMARKS.

According to the last report, there have been over seven thousand applications for registration filed since April 1, 1905, and if any conclusion can be drawn from this fact, it is that manufacturers and other owners of trademark rights are taking early advantage of the liberal provisions of the new registration law, which fact should have considerable weight in determining others as to the wisdom of making such applications.

While the new registration law does not compel all owners of trademarks to register their marks in the United States Patent Office, it does, however, grant such rights as are of great importance in case of infringement; but whether a trademark is registered or not, the advisability of searching the records of the Patent Office, before adopting a new trademark, is not open to serious question. We have known of instances where parties adopted trademarks in connection with some new specialty, and expended considerable money in advertising the same, only to find that some one had previously registered the same mark in connection with a similar class of goods.

It would seem to be necessary before anyone goes too far in exploiting a trademark in connection with a particular line of goods, to have the Patent Office records searched, with a view of ascertaining if the mark se-

lected has been registered. If the record is clear, the party is reasonably safe in going ahead with the exploitation of the trademark. If, however, the record shows that the trademark has been appropriated by someone else, for use in connection with the same line of goods, it is possible that further investigation may reveal the fact that the party who registered the trademark has stopped using the same; and this brings us to a consideration of the extent to which a trademark owner may monopolize the use of his mark.

The right to a trademark is perpetual, and in this respect differs from a patent right, which only runs for a period of seventeen years in this country. We said "perpetual," but this is contingent on the fact that the trademark owner shall use the trademark continuously. If he retires from business, and no one succeeds to his business in the use of the mark, or if he discontinues for any considerable period the use of the trademark, someone else can take up the mark and apply it to the same goods and obtain a legal right thereto.

In selecting a trademark, too much care cannot be exercised. A coined word is the best trademark that can be chosen, for in most instances, it immediately attracts attention, and besides, the courts give greater protection to such marks.

Three illustrations will suffice:

The National Biscuit Company adopted the word "Uneeda," and by the expenditure of considerable money in advertising, have brought their trademark before the public in a way that it is known to all men. It is both euphonious and expressive. It is today a valuable asset of the company.

A party by the name of Chesebrough, of New York, put up a form of petroleum jelly and called it "Vaseline," coining the word to apply to the particular product made by him. He is today a millionaire, and the name "Vaseline" has become a generic term designating a variety of petrolatum. Still, no one dares use the name "Vaseline;" and as long as Chesebrough is in business, he alone can put up a product of petroleum and call it "Vaseline." Others can make the same article and call it "Petroleum Jelly," and it is done to a considerable extent, but when called for at a drug store it is always referred to as "Vaseline."

Another instance is that of a party by the name of Hildreth, of Boston, Mass., who adopted the word "Velvet" in connection with molasses taffy.

In the first two instances, the trademark word was a new one. In the last instance, it was an old word, used in an arbitrary or fanciful sense. In each instance, when sued upon, the courts protected and sustained the rights of the National Biscuit Company, the Chesebrough Company, and Hildreth, in their trademarks.

Suppose, however, these parties had selected a descriptive word as a trademark, what would have been the result? In such case, the courts could not have sustained the rights of the parties in their particular trademarks, and to hold the infringers, would

have had to apply the doctrine of "Unfair Competition," provided the acts of the defendant had been such as to warrant this. The question of "unfair competition," is one of modern growth, and is being widely extended. It will not be discussed at this time, as it demands separate consideration. Sufficient has been said, however, to conclude that before selecting a trademark and spending money in advertising the same, manufacturers should consult an attorney, and get his opinion as to the validity of the proposed trademark.

AN IMPORTANT COURT DECISION.

The court decisions this month printed in another part of the AGE, contain the syllabus of an interesting decision by the Supreme Court of the United States, and it is entitled *Harley v. United States*.

Harley sued in the Court of Claims to recover the sum of \$102,000 for the use, during the six years preceding the commencement of the suit, of a device invented by him for registering impressions in connection with printing presses. The Court of Claims, in dismissing the bill, found the facts to be as follows:

In November, 1869, the Secretary of the Treasury determined that certain valuable securities should not be printed in the Bureau of Engraving and Printing until proper and reliable registers should be attached to the presses. While the Chief of the Bureau was endeavoring to devise and procure a trustworthy form of register, the claimant brought to him the drawings of a device which he had invented, being substantially the device described in the Letters Patent sued upon. The Chief of the Bureau ordered a register to be immediately made after the claimant's device. At the time of giving such order, he understood that the device was the claimant's invention.

The register so ordered being completed, and tried, and found satisfactory, the Chief of the Bureau proposed to take the claimant to the Secretary of the Treasury that he might explain it to him. The claimant thereupon objected that the invention was not yet patented, and that he wished, before exhibiting it, to obtain a patent for his individual protection. The Chief of the Bureau replied, "Certainly; I will see that you are protected." The claimant, then tacitly consenting, was taken before the Secretary, and explained to him the operation of the register, and the Secretary was at the same time informed that this was the register which the claimant had invented. The Secretary approved the form of register, and directed that such registers be made and attached to the presses of the Bureau.

Before such registers were manufactured the claimant remonstrated to the effect that he wished first to secure a patent. The Chief of the Bureau replied that he would see the claimant protected and would get him a patent attorney who would explain the law to him. This the Chief of the Bureau did, and the attorney so selected proceeded to procure the patent, the

claimant, not the defendants, paying him and the costs and expenses thereof. The attorney so selected at the same time informed the claimant that the manufacture and use of registers in the Bureau would not interfere with, or prevent the procurement of, the patent.

After being so advised, the claimant raised no further objection to the registers being manufactured and used, and tacitly acquiesced in the same.

There was no agreement or understanding between the parties in regard to royalty or the payment of remuneration for the use of the claimant's invention in the Government's printing and engraving, other than such as may be inferred from the preceding conversations. On the part of the claimant, it was supposed and understood that he would be entitled to compensation, and that it would be allowed and paid by the Secretary of the Treasury. But on the part of the Secretary and Chief of the Bureau, it was supposed and understood that the claimant, being an employee of the Treasury Department, would neither expect nor demand remuneration.

III. That ever since the issuance of said Letters Patent the defendant has constructed, and has used continuously, from the date of said Letters Patent, to wit, March 1, 1870, upon and in connection with plate-printing presses used by the defendant in the Bureau of Engraving and Printing and in the Treasury building, the device aforesaid: so patented to the claimant, for the purpose of registering the number of impressions made by the various plate-printing presses, both hand and steam, employed and used by the defendant in the said Bureau of Engraving and Printing and in the Treasury Department building.

IV. The claimant at the time of the making of his invention before described was assistant master machinist in the Bureau of Engraving and Printing. He was never assigned to the duty of making inventions, and it was not a part of his duty to do so: and the invention before described was made within his own time and exclusively at his own cost, and was a completed invention, properly and sufficiently set forth in drawings when first brought to the Chief of the Bureau, as set forth in finding II.

V. The defendants were in the undisturbed use of the claimant's invention from July 24, 1878, to July 24, 1884, by attaching such registers to a great number of their presses. During that period the claimant made no objection to such use of his invention, and failed to give notice to the Secretary of the Treasury or the Chief of the Bureau of Engraving and Printing that he would demand royalty or remuneration therefor.

VI. The average number of presses with claimant's device used by the defendants between July 24, 1878, and July 24, 1884, was 200 per day, covering 1,802 working days.

The question in the case was whether or not, on these facts, a contract arose between the United States and Harley, whereby the United States promised to pay him for the use of his device. The Supreme Court, in

affirming the judgment of the Court of Claims, held that an employee of the government who permits his patented invention to be used by the government without protest, and without a specific demand for compensation, or indeed without any agreement as to compensation, is not entitled to recover in the Court of Claims.

Harley has only himself to blame for his failure to establish his claim for compensation. He waited a period of fourteen years before taking any action. He was prompt in applying for and securing a patent, but was negligent in enforcing his rights under the patent.

While the government has no right, under the law, to appropriate an invention without compensation, particularly when the invention is patented, it was, however, incumbent on Harley to assert his right to compensation, for being an employee of the government, he should not have allowed things to drag along for years without making a distinct claim for a royalty under his patent for the use of the registering mechanism.

It would seem to be clear from reading the Supreme Court's decision, that if Harley had moved with reasonable promptness, his claim for compensation would have been allowed.

Mapping the Pacific.

The Carnegie Institution of Washington has acted favorably upon a project to make a magnetic survey of the North Pacific Ocean, under the auspices of the Department of International Research in Terrestrial Magnetism, and has set aside \$20,000 for the initial expenses. Very little is known of the distribution of the magnetic forces over the greater portion of the earth, and the paucity of precise detail is especially marked in regard to the Pacific Ocean. Except for data acquired from occasional expeditions and from cruises of sailing vessels, the present charts used by the navigator depend largely upon observations on islands and along the coasts. This huge body of water is developing so rapidly in commercial importance, that there is an urgent demand for a systematic survey of the region by some recognized research institution. It is hoped that when this survey is completed, means will be forthcoming to extend it to cover other oceanic areas. An effort will be made to interest all civilized countries, so that we may look forward to the completion of a general magnetic survey of the accessible portions of the globe within the next decade or so. The eminent physicist, Prof. Schuster, has declared that no material progress of terrestrial magnetism is possible until the magnetic constants of the great ocean basins are determined more accurately than at present: so it will be seen that the work is far-reaching in value.

The prime consideration in magnetic work at sea is the elimination of the effects resulting from the ship's own magnetism, due to her construction and equipment. Such effects are especially troublesome to eliminate when it is proposed to obtain not only the magnetic declination at sea, but also

the dip and intensity of the magnetic force. In this attempt, therefore, the managers will charter a wooden sailing vessel of about 600 tons displacement, which, starting next summer from San Francisco, shall pursue a clockwise spiral course embracing the entire North Pacific Ocean,—from the west coast of America to the vicinity of the Galapagos Islands, thence across the Pacific, along the eastern side of the Philippine Archipelago and the empire of Japan, thence eastward to San Francisco, and thence continuing through a series of areas bounded by parallels of latitude and meridians of longitude 5 degrees apart, lying within the circuit just made, and proceeding by successive circuits into the central region of the North Pacific. The total length of the course mapped out is about 70,000 knots, and it is thought it can be covered in three years.

In this connection, it may not be generally known that Uncle Sam has a fleet of seventeen vessels—eleven steamers and six sailing vessels, which are constantly employed surveying the waters adjacent to our coasts. The ships of the Coast and Geodetic Survey have run a spidery lacework of triangles from Passamaquoddy Bay to the Rio Grande and from San Diego to the Arctic Ocean: and since we acquired a colonial empire, they have thrown their web across the wide stretch of waters to Hawaii, Guam and Philippines, and out in the Atlantic to Porto Rico. Last year, one of the boats was even surveying in China.

In the 400 years of Spanish rule, the task of charting the Philippines was hardly begun. Now it is going on vigorously, and 16 new charts of the island waters were issued last year.

An Electrotherapeutic Apparatus.

An electrotherapeutic apparatus is the invention of Charles F. Marsh, of Pensacola, Florida.

The object of the invention is to provide a device of a simple and effective nature for producing a current of such high frequency and potentiality and such low amperage that it is extremely valuable for therapeutic purposes, the current being rich in penetrative force. Another object is to provide the apparatus with electrodes of novel construction whereby an increased quantity of ultra-violet rays is produced, together with a ray more potent than the ultra-violet, and less injurious to tissues than the X-ray, this new ray being between the ultra-violet and the X-rays. In carrying out the invention a resonator is provided. A source of alternating currents is connected with the coil of the resonator at points equidistant from each other and from the ends of the coil. Vacuum electrodes are provided, containing a resistance material, and electrical connections are located between the resistance material in the electrodes and the respective terminals of the coil. An electrode is employed comprising a handle, a yoke thereon, and a strap hinged to the yoke. A vitreous vacuum tube is enclosed by the yoke and the strap. Carbon is placed in the tube, and a circuit is established from the yoke to the carbon by a conductor provided for that purpose.

Uses of Tin Foil.

Tin foil was formerly beaten out, as gold leaf has always been and is today: but about fifty years ago, an American invented a machine for rolling tin foil, which revolutionized the industry. The beaten out tin foil had been made and used for years for wrapping up various things which it was desired to preserve in their original condition. The new process of manufacture, by materially reducing the cost of its production, widely extended the use of tin foil for these purposes.

Later, the inventor of the tin foil rolling machine devised an apparatus for embossing tin foil, by means of which any desired design or pattern could be used, and processes were invented for coloring the surface of the tin foil any color. Thus there came to be produced tin foils covered all over with delicately embossed flowers and vines and stars and diamonds and stripes, in great variety of patterns and designs, and foils embossed in imitation of silk and other fabrics, and these prettily embossed foils were colored in many tints, or made of one color on one side and another on the other.

The embossed foils were made also with gold and with silver surfaces, as were likewise foils smooth surfaced. In short, tin foil had now come to be a thing of beauty as well as utility. One who had never seen any but the plain smooth tin foil could have had little idea, in fact, of the beauty in which the foil is now produced.

And with tin foil produced in such forms, it came to be employed for various uses in which it would increase the attractiveness of the goods around which it was wrapped. The thinnest of the colored and ornamental foils are called tissue foils, and are scarcely thicker than the thinnest paper. Tin foils are rolled in an endless variety of thicknesses, foils ranging from 1,000 square inches to 13,000 square inches being made from one pound of metal.

Beside being used in the wrapping of various sorts of products sold in packages, tin foil is used for wrapping around bottle necks: also for wrapping chocolate and cheese and candy and chewing gum, and for tobacco and cigars.

There is a story of the way in which tin foil first came to be utilized for the last named purpose. It is said that when General Scott was about to depart to take command of the United States troops engaged in the war with Mexico, he went to a tobacconist and asked if there were not some way in which tobacco could be put up so that it would not dry out in the country to which he was going. The tobacco man hit upon the plan of wrapping the cigars in tin foil. The scheme worked so well that there arose a great demand for tobacco put up in this way, and the dealer's fortune was made.

Chandeliers are wrapped up in tin foil, a special foil being made in long strips for this purpose. Soap is wrapped in foil. Violet colored and pretty embossed foil is used for covering the stems of bunches of violets, and other kinds are wrapped around bouquets of other flowers. The product also finds ornamental uses of various kinds at Christmas.

A sort of foil which is called cap metal is extensively employed in the manufacture of bottle caps, of which there are now used in this country alone hundreds of millions annually, such caps being put on many bottled products to give a handsome finish to the package. Bottle caps, which are of ancient use, were once all spun by hand: and in fact the finest and heaviest bottle caps are still made in this manner, but the great majority of the enormously greater number of bottle caps now used are machine made.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy; twenty copies \$1.50.—Please give correct data in ordering.—Address,

THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

Issued May 2, 1905.

MECHANICAL PATENTS.

Adding machine.....H. M. Lockwood
Addressing machine.....C. A. Belknap
Adhesive and making same.....G. A. Thube et al
Adjustable chair.....J. Landkammer
Air brake apparatus.....F. S. Cravens
Air brake system.....D. K. Youitz
Axiometer.....G. D. Warren
Anchor bolt.....G. Cutter
Ash pan, Dumping.....W. S. Whitney
Atomizer.....H. C. H. Deeks
Auger.....A. Y. Pearl
Autographic register.....W. Maass
Automobile controlling means.....B. H. Green
Automobile driving gear.....A. F. Madden et al
Automobile spring seat.....T. J. Lindsay
Awning, Extension wagon.....C. Cretors
Axle, Self-rotating truck.....C. E. Billin
Axle, Vehicle.....G. A. Lambert
Bagging machine.....J. H. Dary
Bait making machine.....2 pats.....O. S. Beyer
Balance, Compensation.....D. H. Church
Bales, Compressing.....S. J. Webb
Baling press.....J. S. Tuttle
Baling press.....J. H. Mercer
Band severing knife.....W. Douglass
Band spout or trumpet.....W. Douglass
Band twister.....W. Douglass
Bass trap, Catch.....S. A. Johnson
Bath cabinet, Electric light.....R. Kay
Bearing, Truck.....W. H. Scott
Beds, Cushioning mechanism for reciprocating.....C. A. McCain
Bed clothes holder.....W. A. Walker
Bedstead, Extensible.....W. A. H. Jones
Beer cooler.....R. Fincken
Belt clasp.....A. Norene
Beverage dispensing apparatus.....C. Dupuis
Bicycle supplemental seat attachment.....D. J. Evans
Bill holder.....E. Budie
Billiard cue.....C. S. Jones
Binder, Loose leaf.....F. B. Jordan
Binder, Temporary.....L. Seage
Binder, Temporary.....H. J. Keuter
Boats, Means for submerging submarine.....R. L. d'Equilly
Boiler.....H. L. Des Auges
Boiler.....C. Olson
Bolt.....H. Schwelger
Book, Manifold.....A. Levison
Boot or shoe, Composite.....G. F. Butterfield
Boring machine.....F. W. French
Bottle, Dispensing.....F. C. H. Strasburger
Bottle holder, Nursing.....M. W. Troy
Bottle, Non refillable.....H. A. Everest
Bottle, Non refillable.....M. Forst et al
Bottle, Non refillable.....J. G. Hayes
Bottle, Non refillable.....F. S. Heffernan
Bottle stopper.....A. Reltier
Bottle washing machine.....F. C. H. Strasburger
Boxes, Machine for attaching fabrics to.....W. Kahle
Bracket.....reissue.....T. Smith
Brake beam.....E. Posson
Brake head.....F. Sargent
Brake operating mechanism, Vehicle.....2 pats.....J. L. Peacock
Brake shoe.....W. M. Simpson
Brake shoe.....H. H. Wright
Brake shoe.....F. Sargent
Branding apparatus.....A. McLeod
Brick machine.....E. W. Rider
Bronze or other metal plates, Manufacturing thin.....E. Oeser
Brush bristle fastener.....C. E. Flemming
Brushes, Manufacture of.....W. Herbert, Jr
Bucket, Elevator.....G. Nikel
Buckle, Back band.....W. R. Medearis
Building block molding machine.....J. W. Shone
Building construction.....E. G. Perot
Building construction.....O. Price
Building construction bracket.....F. Meyer
Bung and tapping device for use therewith.....C. A. Gildemeyer
Burg for fermenting vessels.....W. Laux
Bunsen burner.....H. F. Mielenhausen
Burglar alarm.....J. Naser
Butter into bricks, Machine for forming.....W. H. & A. Y. Noack
Button and loop therefor.....K. I. Howe et al
Cabinet, Hunter's.....R. M. Parsley et al
Cable haul.....J. L. Wagner
Calendar.....W. Zaehring
Candy machine.....A. J. McFann
Cane or crutch attachment.....A. Kunkel
Car.....J. R. Bowling
Car coupling, Safety.....W. D. Worthington
Car door.....W. J. Cocklin
Car door, Railway.....2 pats.....F. S. Ingoldsby et al
Car lighting system, Electric.....R. D. Apperson et al
Car, Low side gondola.....reissue.....G. I. King
Car side.....J. R. Bowling
Car starter.....S. Smith, Jr., et al
Car transom or body boster, Railway.....J. C. Wands
Car wheel.....C. W. Sherman
Carding machine.....F. N. Pitts
Carpenter's bracket.....J. G. W. & C. S. Grieves
Carpenter's gage.....W. H. Vreeland
Carriage seat and couch, Combined.....J. W. Angel
Carriage top former.....J. P. Shipman
Carrier.....E. C. Leonardson
Carts, Double gear for.....D. Giberson
Carving machine bit.....S. F. Anderson
Case hardening.....C. Lamargese
Cash slip and refunding voucher, Combined.....B. F. Seymour, Jr
Casting apparatus.....E. A. Uehling
Casting metals, Machine for making sand molds for.....H. E. Pridmore
Castings, Core for making hollow.....T. H. Symington

Celery digger.....L. M. Yale
Chain, Carrier.....W. Douglass
Channeling machine.....A. A. Ahlquist
Chemical engine.....W. B. Donnell
Chlorides and perchlorates, Manufacture of.....M. Couleru
Chuck.....O. M. Mowat
Chute.....H. H. Porter, Jr
Cigar.....O. Denker
Cigar branding machine.....P. Gebhard
Cigar cutter.....J. W. Hilleman
Cigarette paper holder.....M. P. Casterline
Clamp.....F. Margraff
Clasp pin.....L. C. Seng
Clock, Electric striking.....U. L. Collins
Clock or watch movement.....G. Scherlino
Clock Stop.....L. Witte
Clock synchronizing system.....H. W. Pidgeon
Clothes pin.....F. H. Perry
Clothes pin, Wire.....E. W. & R. L. Ball
Clothing table.....C. J. Stafford
Clutch for power transmission, Friction.....W. E. Andree
Clutch, Friction.....O. Ohlsson
Clutch, Friction.....P. Medart
Clutch, Safety.....A. A. Ambler
Coal pin, Turret.....C. C. Colette
Coffee mill.....W. J. Bussinger
Coffin or casket.....C. D. Crandal
Coin counter.....J. M. Johnson
Coin holder.....J. E. Trahan et al
Coke, Producing compressed A. D. Shrewsbury
Concrete building block mold.....C. G. Conger
Concrete track construction.....H. B. Nichols
Conduit adjustable outlet box, Interior.....W. F. Bossert
Conveyer.....F. M. Peters et al
Conveyer tube.....A. A. Smith
Copper sulfate, Making.....A. L. Walker
Copying bath.....W. A. Murray
Corn husker.....L. Holland-Leitz
Corset.....J. Lindauer
Corset, Apparel.....D. Kops
Corset stay.....J. E. Doolittle
Cotton, Compressing.....S. J. Webb
Cotton gin.....G. A. Lowry
Cotton picking machine.....J. F. Appleby
Counter or desk, Shop or other.....M. Greenfield
Counter, Point.....C. J. Ellis
Coupling device.....H. Ammann
Crib, bed, or the like, Folding.....D. Frank
Crimping machine.....C. B. McDonald
Cultivator, Two row.....F. E. Pearson
Curtain drapery clamp.....M. E. Kuiveton
Curtain hanger.....C. McDonner
Cutter head.....A. Shelburne et al
Cutter head.....W. A. Williams
Dam.....W. L. Church
Dental scraper.....J. W. Ivory
Dentist's excavating bur.....W. Homan
Detachable handle for brooms, mops, &c.....M. Hartman
Diseases, Apparatus for the treatment of certain.....A. H. Pohl
Disinfecting apparatus.....C. J. Waiz
Display apparatus, Electric.....E. L. Zalinski
Display rack.....R. R. Nelson
Display rack.....A. H. Burt
Ditching machine.....W. Umstead
Door holder.....H. B. Sargent
Door releaser and starter.....G. Wideman
Door securer.....C. E. & F. M. Earhart
Door, Warehouse.....J. Erwood
Doors or the like, Means for locking folding.....F. Bohne
Dough raising apparatus.....J. G. Simpson
Douglnut cutter.....A. E. Baum
Drainage and vent fitting, Sanitary.....F. Walker
Drawer handle.....H. Borsig
Dredger.....C. Dellmann
Drill support, Adjustable.....C. I. Eddy
Drying, grinding, and screening apparatus.....L. Rissmuller
Dust collectors, Separating pocket for.....A. C. Brantingham
Dust pan.....S. J. & L. Corner
Dye, Azo.....J. Julius et al
Ear ring.....P. J. Hill et al
Electric circuit establishing means.....G. Thompson
Electric current safety device.....M. Crites
Electric heater.....2 pats.....H. M. Hill
Electric motor and power transmitter.....O. R. Van Vechten
Electric motor starting and stopping device.....J. H. B. Bryan
Electric motors and power transmitters, Switch connection controlling.....H. B. Coho
Electrical circuit resistance.....H. L. Van Valkenburg
Electrical device.....H. Krantz
Electrical wave transmission.....2 pats.....C. D. Ehret
Electrolytic cells, Apparatus for agitating the contents of.....E. A. Ashcroft
Electromagnetic device.....A. Favarger
Electrotherapeutic apparatus.....C. F. Marsh
Elevator.....J. Casho
Elevator brake, Automatic.....M. P. Carpenter
Elevator lights, Device for controlling.....G. C. Klopff
Eliminator.....H. N. Middleton
Embroidering machine attachment.....F. Prescott
Engine.....F. E. Stanley
Engine.....B. T. Ryan
Engine cooling tank, Internal combustion.....L. Braudenburg et al
Engine reversing gear, Explosive.....W. J. Perkins
Engine spark, Explosive.....G. A. West
Engine starting means, Explosive.....H. J. Podlesak
Engines, Combined muffler and fly wheel for.....W. C. Weatherholt
Engines, Combined throttle and governor for explosive.....O. Minton
Engines, Electric sparking igniter for gas or gasoline.....J. P. Seaton
Engines, Means for receiving and loading ash dumps.....C. R. Ord
Envelop fastener.....M. Albea

Engines or the like, Automatic stopping device for.....D. B. Adams
Envelop fastener.....M. Terletzky
Eraser, Blackboard.....E. G. Dann
Evaporating liquids.....J. H. Wallace et al
Exerciser, Coin controlled.....R. H. Hartley
Expansion joint.....B. R. Fales
Fastener, Separable.....M. Lindner
Feed and speed changing device.....K. K. Le Blond et al
Feed regulator, Automatic.....T. C. Lorenzen
Feed trough.....W. A. Clore
Felt cloth, Making.....J. B. Levan
Fence machine.....A. L. Pickering
Fence post.....M. S. Trumbo
Fence post.....J. A. Hamelback
Fence stretcher, Wire.....A. W. Wellman
Fence, Wire.....E. F. Shellabarger
Fertilizer distributor.....C. L. V. Kinney
Fertilizer storing apparatus.....M. Jackson
Fiber cutting machine, Wood.....G. L. Weller
Fiber cutting machine, Wood.....G. E. Le Clair
Filing cabinet or the like, Sectional.....H. Upton
Filing device, Paper.....P. H. Yawman
Filing machine.....F. C. H. Strasburger
Filing mechanism, Receptacle.....T. Roberts
Film perforating machine.....E. Schneider
Filter.....G. W. MacKenzie
Filter.....M. L. Franks
Filter, Reversible.....T. M. Weston
Filter, Self cleaning.....O. L. Besseberg
Fire escape.....T. M. Crowe
Fire escape.....T. Briggs et al
Fire shield, Portable.....S. I. Hayes
Firearm.....G. S. Webber
Fireproof window, Metallic.....J. Bogenberger
Fish cleaning machine.....J. Kellington
Fish hook.....G. W. Blackburn
Fish reel.....A. P. Hinsky
Flask pattern centering device.....G. W. Jones
Flat iron heater.....J. A. Lofstedt
Flier.....M. Campbell
Floor or ceiling plate for pipes.....G. C. Blackmore
Flour bolter, Gyration.....J. F. Harrison
Fruit gathering platform, Portable.....W. V. Brown
Fruit grader and separator.....R. M. Widney
Fuel, Means for promoting combustion of.....I. A. Timmis
Furnace.....T. E. Hunt
Game apparatus.....P. F. Cox
Game counter.....L. F. Lang
Garbage bag.....W. J. Smith
Garment clasp.....M. Moultrie
Garment for men or boys.....J. Fisher
Garment supporting attachment.....H. Higgin
Garment, Union.....G. O. Cook
Gas and oil engine.....A. F. Bauer
Gas burner.....F. M. Ashley
Gas burner bracket.....A. W. Nicholls
Gas engine.....W. S. Browne
Gas generator, Acetylene.....O. H. Hasneder
Gas generator, Acetylene.....G. H. & C. D. Pruitt
Gate.....A. D. Nash
Gearing, Variable speed.....O. W. Johnson
Gearing, Worm.....R. A. Hammond et al
Governor, Gas engine.....2 pats.....F. B. Jeffery
Grading apparatus, Road.....E. P. Arseneau
Grain drill speed changing mechanism.....E. J. Corser
Grain grading machine.....A. P. MacDonald
Grinder, Grain and feed.....H. B. Jones
Grinding mill.....G. S. Cushing
Gun sight.....F. D. Hopkins
Gun with wedge breech block, Barrel recoil.....M. Hermsdorf
Hair crimper.....J. F. Martin
Hair crimper or curler.....H. C. Adams
Hammer, Pneumatic.....J. Beche
Hammer, Power.....O. P. Micklebost et al
Hammock.....C. M. Berrio
Hand rake, Wheeled.....M. W. McCann
Harvester, Corn.....J. B. Straight
Harvester frame.....W. Webber
Harvester reel drive.....W. Webber
Harvester, Self-binding.....W. Douglass
Hat, coat, or the like holder.....G. Schwin
Hat stiffening machine.....J. Marshall
Hay press.....H. E. Albert
Heating system and apparatus, Steam.....A. McGonagle
Heel attachment, Reversible.....C. O. Frank
Hide working machine.....A. A. Hutchinson
Hobby horse.....J. C. Hughes
Hoisting mechanism.....R. F. Scott et al
Holdback fastening.....L. W. Ashley
Hook.....A. W. Sprague
Hose clips, Machine for applying.....2 pats.....W. A. Walker
Hose coupling.....T. C. Rogers
Hose couplings, Machine for applying.....H. H. Welsh, Jr
Hose nipples, Machine for applying.....H. H. Welsh, Jr
Hose shut-off and carrying device.....G. D. Rowell
Hydraulic jack.....J. O. Bushyeager
Hydrocarbon burner.....H. Johnson et al
Hydrocarbon burner.....J. Fitton
Ice cream mold.....J. E. Miranda
Illusory attachment device.....W. J. Citron
Index for supply cabinets.....G. T. Robie
Ink holder.....L. Edelmuth et al
Inking mechanism.....D. W. Custer
Inseam trimming machine.....J. O. Selby
Internal combustion engine.....L. Mertens
Iron and steel plates, Apparatus for use in uniting.....W. Cross
Jars, &c., Lid for.....G. Van Evck
Kneading and mixing machine.....C. Cristadoro
Knitted fabrics, Making elastic.....W. Bottger, Jr
Knobs, Making carriage curtain.....F. A. Neider
Knobs, Making split shank curtain.....F. A. Neider
Lacing hook setting machine.....W. A. Hargraves
Ladder and scaffold, Combined.....M. Bauer
Ladder, Extensible.....J. S. Tilley
Lamp.....A. Blesman
Lamp burner.....reissue.....B. F. Fowler

Lantern or the like slide, Magic.....E. T. Sherman
Latch hook.....F. C. Baker
Laundry iron.....M. Mavis
Leach tank.....J. D. Wood
Leer.....J. Goodman
Lemon juice extractor.....E. O. Conroy
Lifting device.....C. W. Coleman
Lifting jack.....H. Schriber
Light tower.....S. T. Coverstone
Lime light fixture.....A. C. Roebuck
Linotype machine alarm.....F. W. Blair
Lifter attachment.....J. A. Herron
Locomotive.....F. O. Whealon
Log sled tramway.....A. H. Waters
Loom bobbin, Cotton.....J. H. Whitten
Loom center selva mechanism or attachment.....H. Ledoux
Loom electrical stop mechanism.....F. M. Armstrong
Looms, Mechanism for winding fabrics in skein form on narrow ware.....A. H. Steele
Lubricator.....J. McQuoad
Mail chute.....J. W. Cutler
Manuscript holder and lighting appliance.....W. S. Morris
Marking surface areas, Machine for.....E. V. Beals
Match box.....E. Rogers
Material treating apparatus.....2 pats.....E. N. Trump
Mattress.....J. B. Andres
Measure, Hoof.....C. E. Murray
Measuring device.....G. H. King
Measuring device.....J. Banuet
Measuring machine, Seed.....W. Brough
Meat tenderer.....J. Rains
Metal, Manufacture of expanded.....G. G. McKay
Metals, Extracting.....J. A. Just
Metals from their solutions, Reducing.....C. B. Jacobs
Milk can.....J. B. Conover
Mine door operating mechanism.....R. J. Good et al
Mining drill.....F. W. Olcott
Mirror holder, Adjustable.....S. E. Crane et al
Mold cope filling machine.....J. Root
Monolith, Process of and product in.....H. Merkel
Mop head.....H. Bitner
Mop holder.....H. Bitner
Mosquito nets, lamps, or the like, Device for supporting.....A. S. Powell
Music leaf turner.....J. D. Trombley
Musical instrument player, Pneumatic.....L. U. Jobs
Musical instruments, Note sheet for self playing.....E. F. Smith
Nail set.....T. F. Thompson
Necking in machine.....H. H. Hull
Nippers, pliers, or similar tool.....W. A. Bernard
Noodle cutter.....W. V. Heinz
Numbering machine.....2 pats.....E. G. Bates
Nurling machine.....E. Childs
Nut cracker.....D. L. R. Rochlitz
Nut for vehicle nuts or the like, Lock.....G. W. Peter
Nut lock.....E. S. Hawkins
Nut lock.....W. W. Wise et al
Nut, Top prop.....H. Higgin
Oar, Bow facing.....F. L. Buff
Ore classifying and sizing machine.....W. E. Wild
Ore separator.....C. W. Strong
Ores, Treating fine.....D. Baker et al
Ozonizer, Electrical.....C. A. Sahlstrom
Packing.....E. D. Harsen
Packing pad.....E. J. Stewart
Pail, Dinner.....W. N. Stephan
Paper bag holder.....L. Emerson
Paper barrel.....H. G. Post
Paper, Machine for fingering endless glazed.....G. Hennessen et al
Paper making apparatus.....R. W. Bainbridge
Paper making machine.....L. F. Jurgenson
Paper stand and cutter, Roll.....J. G. Cox
Parer and slicer, Vegetable or fruit.....A. L. Allen
Pavements, Heater for repairing bituminous and asphalt.....G. H. Fairchild et al
Paving rammer.....W. A. Childrey
Pencil.....A. E. Buckingham
Perborate, Making.....O. Liebknecht
Photograph cylinders, Tuning.....W. H. Miller
Photographic apparatus.....P. O. Pederson
Photographic developing device.....G. S. Smallwood
Piano.....G. Anderson
Pick, Miner's.....W. W. Hoover
Pile fabric, Woven.....F. Hammer
Placer machine.....H. J. Swarts
Planter.....W. V. Hart
Plastic block molding machine.....C. P. Throckmorton
Plow.....S. Boyer
Plow and cultivator fender adjuster, Corn.....G. B. Ucker
Plow shoe.....W. J. Stogner
Pole or shaft, Vehicle.....G. A. Lambert
Pole, Vehicle.....2 pats.....G. A. Lambert
Popcorn popper.....J. Spray
Position finder, Depression.....G. N. Whistler et al
Potassium salts, Making.....A. J. Swayze
Power transmission mechanism, Variable speed hydraulic.....J. C. Riegel
Printer's register hook.....L. C. Watkins
Printing drum for warps, Double.....F. Schmidt
Printing warps on printing drums, Apparatus for.....F. Schmidt
Protractor.....C. E. Mentzer
Pulley, Expansive and contractive.....H. A. Mann
Pulp, Making wood.....G. S. Cushing
Pump mechanism.....R. E. Green
Pumping device, Power.....A. P. Smith et al
Radiator, Portable Steam.....H. H. Cooke
Rail joint.....O. F. Jordan
Rail joint.....J. Wolfe
Rail joint.....C. A. Miner

Rail joint E. A. Barry
 Rail joint A. Bonzano
 Rail joint C. E. Burns
 Rail joint W. D. Johnson
 Rail tie W. S. Roush
 Railway block signals Automatic electric light connection for automatic W. Alloway
 Railway brake mechanism C. J. A. Machut
 Railway points, signals, crossing gates, &c. Apparatus for operating and controlling W. A. Cosserrat
 Railway rail joint angle bar G. H. Williams
 Railway signal J. Blidson
 Railway signal. Electrical J. W. Tatum
 Railway signal system A. L. Bower
 Railway signaling. Electric circuit and apparatus for H. W. Spang
 Railway signaling system and electropneumatic valve therefor. Pneumatic E. C. Irving
 Railway spike lock G. A. Allen et al
 Railway spiral J. B. Wilmouth
 Railway switch C. Bisbee
 Railway switch T. K. Bell
 Railway switch. Automatic U. A. Woodbury
 Railway tie and clamp H. S. Kilbourne
 Railway trains. Means for automatically stopping R. A. Johnstone
 Railway vehicle bogie I. A. Timmis
 Razor 2 pats. F. Kampfe
 Razor. Safety R. J. Christy
 Reamer. Expansive J. C. Adkins
 Receptacle closer F. G. Nicolaus
 Register look H. B. Rouse
 Rotary engine W. Clemens et al
 Rotary engine S. J. Lawrence
 Rule. Wine or spirit calculating slide F. C. Farmar
 Rule, printing, and cutting machine D. W. Custer
 Sad iron shield C. A. Barrow
 Salt distributor A. J. Haus et al
 Sash fastener A. W. Carlson
 Sash fastener G. H. Briggs
 Sash fastener G. D. Jones
 Saw clamp M. W. Stoughton
 Saw filing machine J. E. Clemens
 Saw guide A. I. Coukey et al
 Saw handle J. Fafri
 Saw handle fastening L. F. Smith
 Sawmill set works 2 pats. W. H. Trout
 Sawmill starting mechanism E. Hoops
 Scaffold W. O. Jones
 Seal C. A. Coffin
 Seeder, Potato R. Mitchell
 Seeding machine S. H. Jones
 Separator liner. Centrifugal A. L. Christenson
 Sewing cabinet M. A. Brown
 Sewing machine work clamp G. S. Gatchell
 Sewing shoe soles to uppers J. A. Rhoulit
 Sharpening mechanism. Rock drill W. P. Lightbody
 Sheet metal parts. Means for uniting M. M. Steele
 Shingle. Roofing L. G. Sharp
 Show case T. Robertson et al
 Show case W. K. Williams
 Show case doors. Antifriction support for T. Robertson et al
 Shuttle I. H. Nason
 Sign. Advertising H. J. Van Haagen
 Signal system. Electric R. O. Johnston
 Signature or paper sheet separating apparatus C. A. Juengst
 Skylight F. C. Kasch et al
 Slack adjuster J. B. Reed
 Sled guiding attachment H. D. Roe
 Slicer and grater. Vegetable L. B. Seitz
 Smelting and refining furnace. Combined C. C. Medbery
 Smelting and separating. Copper G. Mitchell
 Speech, &c. Apparatus for electromagnetically receiving, recording, reproducing, and distributing articulate V. Poulsen
 Speed changing device R. K. Le Blond et al
 Sprayer. Stock M. W. Kouns
 Spring bottom J. F. Gail
 Stamp Hand F. W. Collins
 Stamp mill G. C. Richards
 Stamp mill stems. Means for fixing tappets to H. C. Fisher
 Starch. Making lump E. Gudeman
 Steam engine H. D. Langton
 Steel. Continuous process of manufacturing H. Knott
 Stereotype metal melting pot C. S. Parridge
 Stock fountain. Automatic T. J. Moore
 Stock guard H. A. Middaugh
 Stocking Elastic W. Bittger, Jr
 Stopper extractor and protector P. T. Reed et al
 Stove or furnace M. W. Woodbury
 Strainer A. W. Prescott
 Stuffing box H. L. Naxon
 Sulfur burner H. Blumensberg, Jr
 Surface cooler W. Hohbach
 Switch mechanism. Electrical H. Krantz
 Svinge H. C. McKim et al
 Svinge G. A. Hulet
 Tar melting and gravel heating apparatus F. Marsh
 Tea kettle cover H. L. Hanner
 Teeth. Device for removing obstructions from between the C. F. Roth
 Telegraphy and telegraph apparatus W. Trafford
 Telephone switchboard annunciator C. T. Mason
 Telescope C. F. Diekmann
 Tent P. T. Peralta
 Thrashing machine riddle adjusting mechanism L. Werts
 Ticket protector. Pin L. E. Hacherele
 Time recorder. Workman's J. N. Emley
 Tire armor. Pneumatic R. Wright
 Tire charging pump. Automatic J. M. Hibbard et al
 Tire. Pneumatic C. S. Frank
 Tire. Resilient vehicle G. B. Dreden
 Tire upsetting machine E. Einfeldt
 Tire. Vehicle 2 pats. P. E. Donlittle
 Tobacco stemmer F. Munsey
 Tongue weight A. C. Ols
 Tongue support. Wagon Z. D. Robison
 Tool. Combination A. M. Parker
 Tool. Multiple E. Webb

Toy F. Leopold
 Tramways. Bucket clip for aerial wire rope B. C. Riblet
 Transport appliance. Endless rope G. Leue
 Transport appliances. Goods detaching device in endless rope G. Leue
 Trestle W. N. Wight et al
 Trolley C. M. Feist
 Trolley wheel. Electric T. Cuphrat
 Truck and scale platform. Combination P. Morgan
 Truck. Radial R. Wells
 Truck safety attachment. Car J. B. Wright
 Truss A. Meus
 Tubes. Apparatus for forming flexible metal M. M. Waterman et al
 Tug securing and releasing device. Harness W. Goetz
 Tunneling. Overhead shield for R. Stone
 Turbine. Elastic fluid F. Hodgkinson
 Turbine. Steam T. J. Masters
 Type writers. Cushion stop for hinged parts of G. W. Downing
 Type writing machine L. P. Diss
 Type writing machine J. Felbel
 Type writing machine. 2 pats. F. A. Young
 Type writing machine N. C. Darrow
 Uncoupling apparatus C. A. Lindstrom
 Valve A. F. Bennett
 Valve H. Zins
 Valve. Automatic closing H. Wehner
 Valve gear F. S. Smith
 Valve gear F. W. Bohn
 Valve. Hydraulic C. L. Huston
 Vehicle body hanger C. T. McCue et al
 Vehicle. Motor C. Schmidt
 Vehicle. Motor H. Sehaud
 Vehicle spring connection C. T. McCue
 Vending machine J. Fritsch
 Vending machine F. Lynes
 Vestibule T. A. Ryan
 Veterinary injector G. B. Blackman
 Vise. Bench R. J. Schlosser
 Watchcase E. A. Larsh
 Watchmaker's tool G. W. Bowers
 Water elevator. Wind operated L. W. Maxon
 Water heating apparatus P. A. Deasy
 Water tank. Frost proof F. M. Vandergrift
 Water tube boiler J. M. McClellon
 Waterproof composition W. Maasch
 Web guiding device J. O'Connor
 Weighing machine. Automatic J. Hickey
 Well apparatus. Oil W. T. Bradstreet
 Well tube clamp. Oil W. M. Thomas
 Wind chest with individually operative valves. Pneumatic universal A. Klann
 Winding machine. Bobbin or spool J. Garsed
 Winding machine. Tread C. H. Cressy
 Winding machine. Web E. Schoening
 Window S. H. Mercer
 Window frame C. S. Moore
 Window screen C. C. Wheeler
 Wire weaving machine E. F. Shellabarger
 Wood bending machine H. L. Staley
 Woven fabric H. Sarafian
 Wrench I. F. Johnson
 Yoke. Neck G. A. Lambert

DESIGNS.

Banner J. R. Evans
 Powder receptacle. Toilet W. A. Bradley
 Reflector K. Booth

Issued May 9, 1905.

MECHANICAL PATENTS.

Acid and its salts. Producing tartaric C. Ellis
 Adding machine W. F. Gatewood
 Advertising clock F. C. V. Arn et al
 Advertising device D. Walker
 Agricultural apparatus. Motor driven A. E. Cook et al
 Alkaline fluosilicates. Making J. A. Reich
 Alloys. Electrolytically refining copper nickel A. G. Betts
 Amusement device W. H. Strickler
 Armature punchings to the spiders. Fastening G. H. Reist
 Ash dump. Automatic C. Dorffel
 Automobile B. E. Hervey
 Awning F. Thoms
 Axle box. Vehicle J. Thompson
 Bacteriological oven or incubator C. E. Skinner
 Bag fastener D. G. McClay
 Baling press G. E. Rider
 Baling press W. D. Kelley
 Battery plate. Storage C. H. Whiting
 Battery plates. Protective sheath or envelope for storage A. Meyre
 Beam presser H. Parsons
 Bed W. Lewis
 Bedstead. Extension A. Rudnitzky
 Beer cooling device I. Douglass
 Bill hook W. Hornick, Jr
 Billard cue tip fastener H. Seelinger
 Binder. Temporary E. C. Suckert
 Binding material and making same L. Grote
 Binding post E. J. King
 Binding post H. L. Steinberger
 Blasting composition M. Bielefeldt
 Boiler or the like furnace. Steam A. S. Goldie
 Boiler tube cleaner H. F. Weinland
 Boiler tube stopper H. T. Mason
 Boiler tubes to the tube sheets. Means for attaching H. L. McCullough
 Book. Manifold H. H. Norrington
 Bookcase. Sectional F. W. Tobey
 Bottle S. E. George et al
 Bottle, &c. carrier or holder H. W. Beers
 Bottle. Non refillable T. N. Everett
 Bottle. Non refillable B. Somerville
 Bowling alley pin setter. Mechanical R. A. Thompson et al
 Box cover detacher E. S. Savage
 Brake operating means L. C. Kohler
 Brewing apparatus. Soy T. Suzuki
 Brick kiln M. S. Storer
 Bridge. Bascule W. I. Watson
 Brush A. L. Sonn
 Brush. Blacking S. W. Emory
 Burglar alarm and lock. Combined W. P. Johnson

Burial casket C. E. Myers
 Burial garment G. Buesing
 Butter cutter and measuring implement T. Taillefer
 Butter wire A. G. Kelley et al
 Cabinet M. Kovacevic
 Cabinet. Sorting N. F. Garbo
 Cake mixer E. Roock
 Calculating machine W. H. Clark
 Calendar C. N. Manfred
 Can crimping machine brush attachment W. Boldenweck
 Candle holder D. W. Williams
 Car J. F. O'Connor
 Car E. W. Summers
 Car coupling F. J. Gibbs
 Car door operating gear. Side dump W. F. Kiesel, Jr
 Cardraft rigging. Railway J. F. O'Connor
 Car. Dumping H. A. Peiler
 Car fender. Street G. H. Bolduc
 Car. Freight T. F. Burke
 Car heating system. Compound E. H. Gold
 Car loader M. C. Lilly
 Car replacer E. W. Rosenberg
 Car roller side bearing I. F. O'Connor
 Car seat H. E. Ackerly
 Car underframe. Metallic A. Stucki
 Car wheel dishing and rounding apparatus. Steel C. T. Schoen
 Carbureter for explosive engines. Atomizing. J. Grouvellet et al
 Carding engine feed C. M. Barber
 Carpet beater D. P. Farrell
 Carriage. Baby A. J. Adams
 Carriage top frame joint W. J. Baker
 Cash register J. I. Tod
 Cash register T. Carney
 Cash register T. Carroll
 Cash register attachment J. E. H. Hyde
 Casket canopy. Folding C. E. Richards
 Casting. Steel G. M. Ervin
 Casting. Steel F. Nather
 Cattle guard J. Philips
 Chair iron H. W. Rolens
 Chair legs, &c. Tip for G. R. Stetson
 Chart. Astigmatic E. L. Ryer
 Check, &c. perforator J. M. Steinhart
 Cheese box W. A. McElney
 Chimney top A. Wyss
 Chimney valve F. E. Bachman
 Chuck or tool holder for rock drills or other machines J. Turnbull
 Chute. Coal D. S. Post
 Circuit breaker J. E. Woodbridge
 Clasp or fastener A. de Saint Chamas
 Cloth cutting device J. Collings
 Coal breaker cleaning device J. L. Miller
 Cocoa bar cutter and drier D. Gordon
 Coffee cleaner C. H. Stubbs
 Coil. Reactive E. Thomson
 Collar forming and shaping machine W. B. Scott
 Comb cleaner G. A. Robbins
 Computing machine. 2 pats. F. M. Carroll
 Computing machine sight plate E. S. Swift
 Conductor. Leading in W. R. Whitney
 Copper pouring spoon and splash shield R. Bagdaley
 Corer. Fruit or vegetable P. J. Eby
 Cork retainer H. Coale et al
 Corner brace A. D. Goodell
 Cornstalks, sugar cane, sorghum, or analogous with stalks and papers produced thereby. Manufacturing products from V. Drewson
 Corset T. F. Somers
 Cotton chopper and cultivator G. Zoll
 Cotton opener feeding apparatus T. R. Marsden
 Cotton wool. Treating B. F. Taylor
 Couch, &c. Convertible T. Hauser
 Crane and block for dredge boats G. W. & J. R. Gerhart
 Crank connector W. Wattle
 Cribbing F. H. Brenton et al
 Cribbing J. Struthers et al
 Crushing machine C. G. Buchanan
 Cuff securing device P. E. Miller
 Cultivator L. E. Waterman
 Cultivator disk S. A. Harris
 Cultivator draft appliance S. E. Bailor
 Curbing and street sprinkling apparatus. Combination G. A. Case
 Current generator. Alternating E. F. W. Alexanderson
 Current motors. Controlling alternating M. Mitch
 Currents with a high number of vibrations. Producing alternating V. Poulsen
 Curtain pole flexer C. W. Smith
 Curtain. Porch J. C. Wilson
 Cycle driving gear W. Trainor
 Dasher I. M. Murphy
 Dasher 2 pats. J. T. Lihou et al
 Decoration and making same J. D. Kyle
 Dental appliance F. Davis
 Dental device H. G. Dressel
 Dental electrode for medicament diffusion S. H. Linn
 Display rack R. J. Rice
 Distilling apparatus W. B. Harper
 Distilling apparatus. Wood Z. E. Fivash
 Door closer and check W. M. Dizer
 Dough goods, especially marconi. Drying L. von Susskind
 Dough mixing and kneading apparatus J. Koelner
 Dough trimmer W. C. Burry
 Drain equalizer S. F. Arthur et al
 Drain cap E. A. Dreher
 Drawing board J. Barnard et al
 Dumb bell C. E. Ham
 Dust proof cover for extractors C. Kersten
 Egg carrier J. G. Dawson
 Egg handling apparatus P. Mandeville
 Electric cut out R. Dreiholz
 Electric drop light bracket C. E. Zeisinger
 Electric machine. Alternating current dynamo M. C. A. Latour
 Electric machine. Dynamo M. C. A. Latour
 Electric machine. Static T. H. Patee
 Electric motor J. E. Noeggerath
 Electric motor control W. E. Carpenter
 Electric motor controller C. A. Stauffer
 Electric motor. Unsymmetrically wound F. J. Newman
 Electric snap switch M. Guett
 Electric switch M. Guett

Electric switch H. F. Kell
 Electric switch J. A. Wright et al
 Electric switch G. C. Marx
 Electrical collector P. Ackermann
 Electrical conductor C. L. Burlingham et al
 Electrical cut out W. D. Packard
 Electrical indicator signal G. W. Pettev
 Electrical switch H. R. Sargent
 Electrical test set A. J. Carter
 Electrically operated switch for controlling circuits, &c H. R. Sargent
 Electrode. Arc D. A. Holmes et al
 Elevator 2 pats. A. Aker
 Elevator safety B. D. Charles
 End gate attachment B. P. Duke
 Engine L. N. Touss
 Engine cooling mechanism. Explosion H. Richter
 Engine mixing device. Internal combustion H. Richter
 Engine sparking device. Explosive A. Herz
 Engraving C. G. Petit
 Engraving machine. Pantograph J. & J. Hope, Jr
 Eraser. Blackboard W. H. Londergon
 Evaporating apparatus. Multiple effect S. M. Lillie
 Excavating tool J. C. Green
 Excavation. Automatic jet pipe for S. A. Jubb
 Eyeglasses, &c 2 pats. W. R. Smith
 Eyeglasses, &c. Holder for lenses of G. H. Winslow
 Eyelets. Die for applying covering material to the faces of E. Kempschall
 Eyelets. Forming E. Kempschall
 Faucet A. O'Brien
 Faucet E. C. Schwingel et al
 Faucet or bib cock. Self draining E. T. Freeman et al
 Feed table driving mechanism. Roller R. H. Stevens
 Fence construction. Iron R. C. Stewart, Jr
 Fertilizer distributor H. S. Campbell
 Fertilizer distributor C. Johnson
 Fibers, &c. Separating and cleaning hemp M. G. McLane
 File E. B. McClintock
 Filter T. Linke
 Filter and cooler. Air J. Zellweger
 Filter. Water L. & R. O. Duncan et al
 Fire escape L. Newman
 Fire extinguishing devices. Chemical mixer for A. G. Stevens
 Fire extinguishing gun R. K. Chisholm
 Firearm H. D. Chichester
 Firearm attachment D. A. Aitken
 Firearm magazine F. J. Baker
 Fireman's uniform I. Derr
 Flash boiler A. G. Davis
 Flue scraper J. S. Park
 Folding chair or seat W. J. Shortall
 Forceps and metal sealing band. Umbilical E. V. Acheson
 Forming machine E. L. Sons
 Fuel burning apparatus F. N. Spear
 Fuel deflector for mechanical stokers J. I. Burwell
 Furnace R. C. Bloomfield
 Furnace T. D. James
 Furnace charging apparatus R. Bagdaley
 Furnace door. Water cooled 2 pats. L. I. Knox
 Furnace fuel feeder F. N. Spear
 Furnaces. Apparatus for distributing molten slag in blast R. Bagdaley et al
 Furnaces. Apparatus for feeding and distributing molten material in blast E. W. Lindquist
 Fuse D. Pistorio
 Garbage furnace E. J. Little et al
 Gas burner W. J. Keep et al
 Gas burner for incandescent lights or for heating purposes I. Shook
 Gas burner valve mechanism. Automatically controlled G. Jacobs et al
 Gas connections. Automatic safety device for J. Pfeiffer, Jr
 Gas cut off. Automatic B. D. Hemsted
 Gas engine F. F. Youngs
 Gas generator. Acetylene H. F. Gaines
 Gas governor F. C. Hodgkiss
 Gas manufacturing apparatus B. E. Eldred et al
 Gas mixing apparatus C. M. Kemo
 Gases. Recovering sulfuric anhydride and sulfuric vapors from M. Schroeder
 Gear case R. L. Waters
 Gear. Reversing V. Chartener
 Glass articles. Apparatus for making F. L. O. Wadsworth
 Glass articles. Manufacture of F. L. O. Wadsworth
 Glass manufacture F. L. O. Wadsworth
 Glass reheating furnace or glory hole F. J. Arbogast
 Glass surface cleansing pad F. Grether
 Globe holder C. F. Harthan
 Glove. Base ball J. E. Bennett
 Grading and ditching machines. Elevating carrier for B. O. Rhodes
 Grain scourer and separator J. B. Cornwell
 Grain separator J. A. Butcher
 Grindstone sickle holding attachment H. F. Bonesteel
 Guns. Automatic blower for J. D. Edwards et al
 Hair waving device M. G. Dunlap
 Hammer clutch mechanism. Power C. Keller
 Harness attachment S. H. Eling
 Harrow. Riding R. C. Dennis
 Harvester. Stripper C. A. A. Rand
 Hat ventilator W. H. Vance
 Hay fork G. M. Smith
 Hay rack H. Bastian
 Head rest W. F. Hedstrom
 Heater J. E. Peck
 Heel cutting machine W. Wolfe
 Hemstitching device M. A. Krag
 Hide or skin treating machine F. A. Parkhurst
 High potential switch W. L. R. Emmet et al
 Hoist R. Conrad
 Hoist overload cut out P. J. Darlington
 Hoisting apparatus A. L. Le Grand
 Holder A. A. Low
 Hollow articles. Constructing seamless F. A. Voelke
 Hose. Collapsible ventilator G. H. Rerstrom
 Hose coupling E. H. Gold

- Electric switch indicating dial C. G. Perkins et al
Electrical furnace I. S. Preuner
Electrical vibration systems. Apparatus for increasing the discharge energy of F. Braun et al
Electrolytic apparatus F. A. Decker
Electrolytic apparatus W. M. Johnson
Electrolytic purposes. Centrifugal apparatus for R. V. Heuser
Elevator A. Karrer
Elevator cars and doors leading thereto. Mechanism for automatically controlling G. W. Wright et al
Elevator rope drive R. C. Smith
Elevator safety appliance G. M. Baker
Engine boiler. Traction E. Leonard
Engine coupling. Traction C. A. McCune
Envelop and message blank. Combination W. H. Bassinger
Explosive composition L. Thomas
Explosive compound A. E. Stanley
Fabric handling mechanism C. J. Bellamy
Fan B. Balin
Fastener for dresses, &c. W. Nichols
Fasteners. Machine for shaping and setting metallic R. Coates et al
Fastening device F. A. Freeman
Faucet lock mechanism W. H. Chanery
Faucet. Self-closing A. O'Brien
Feed water regulator F. N. Atzberger
Feeding device A. F. Jacquemin
Fence post C. F. Bartling
Fencing. Making wire T. Litwiler
Fender S. F. Beckwith
Fifth wheel H. C. Swan
Film spool receptacle for plate holders. Detachable E. L. Hall
Filter J. F. Skelton
Filter. reissue J. H. Ernst
Filter. Self cleaning B. Metcalf
Fire apparatus B. B. Briggs
Fire escape E. Perry
Fire extinguisher. Chemical A. J. Knight
Firearm. Magazine. 2 pats J. D. Pederson
Firearm recoil lock J. D. Pederson
Firearm sight A. W. Savage
Fluid motor. Elastic G. A. Aldrich
Foot rest J. H. Longley
Force feed lubricator J. E. Burns
Foundry device C. F. Blechschmidt
Fruit picking sack and measure. Combined E. F. Douglass et al
Fruit pitting machine feeder J. S. Briggs
Fuel briquet and making same. V. Conti et al
Fuel feeding device. Automatic W. H. Cooke
Furnaces. Apparatus for charging plates into G. T. Snyder
Game apparatus. Base ball J. E. Dauer
Game ball A. Englerth et al
Garlic separator F. C. Bechtel
Garment fastener E. K. Baston
Garment hanger M. E. Cummings
Gas burner C. E. Hall
Gas burner. Incandescent A. P. Storrs
Gas burner mantle A. H. Sassman
Gas engine G. A. Aldrich
Gas meter sealing device J. Lichetti
Gas. Obtaining producer A. Desgraz
Gas producing and consuming apparatus C. Ellis
Gases. Controlling furnace J. W. Dougherty
Gear. Reversing propeller W. E. Patrick
Gearing. Transmission N. T. Harrington
Glass forming machine shearing device M. M. Quinn
Glass sealer. Window J. M. Cushman
Glass sheet or plate manufacturing apparatus H. K. Hitchcock
Golf ball L. J. Du Mahaut
Granular materials. Apparatus for cooling and drying F. Holl
Grinding machine D. B. Hyde
Grinding machine J. Bath
Grinding machine hood F. H. Kaltenbach
Grindstone protecting device J. E. Thome
Gun rapid charging apparatus C. P. F. Schneider
Gun. Recoiling K. Haussner
Guns or the like. Sighting device for N. E. Andersen
Hammer drill A. E. Johnson
Hammer. Power C. T. Whitesel
Handling loose material. Apparatus for P. L. Hay
Harp J. E. Childs
Harvester W. Smolley
Hay press feeder E. W. Shaw
Hay rack and press. Combined E. A. Orr
Heater C. S. Folsom
Heating systems, &c. Drain attachment for steam R. L. Gifford et al
Hose socket shank N. L. Garrett
Hoisting mechanism landing chair W. Burkart et al
Hook L. Moore
Hook hanger J. L. Cavanaugh
Horse shoe J. E. G. Geisel
Hose drying device C. M. Bowman
Incubator J. M. Day
Indicator E. S. Boynton
Ingot mold T. D. West et al
Insect gathering machine A. C. Stiles
Insulator. Canopy E. E. Bechtold
Insulators. Manufacturing high potential earthenware F. M. Locke
Interrupter M. K. McGrath
Ironing board E. O. Gatteys
Ironing board J. W. McKinney
Ironing board S. E. Box
Ironing board J. H. Hamilton
Label. Lumber A. E. Baird
Lamp socket holder. Glow. 2 pats H. T. Hochhausen
Lamp socket. Incandescent G. H. Proctor
Lap rope D. Levinson
Last D. Haveron
Lasting boots or shoes D. Haveron
Latch. Drawer T. Carney
Lead trap C. H. Moore
Lens centering, marking, and testing instrument C. W. Howland
Lighting arrester G. H. Short
Liquid fuel burner A. C. Cunningham
Liquid fuel heating means F. W. Jackson
Loading machinery J. McVier
Lock F. D. Ward
Lock R. A. Turner
Lock A. G. Baker
Lock and latch H. G. Voight
Lock and latch. Combined G. W. Hintz
Loom dobby mechanism B. F. McGuinness
Loom harness operating mechanism C. H. Draper
Loom lay motion G. Schwabe
Loom lay. Narrow ware W. Wattie
Loom needle or wire. Pile fabric W. Wattie
Loom. Pile fabric W. Wattie
Loom. Pile fabric J. Ruckler
Loom take up mechanism C. E. Nutting
Lubricator R. Lichter
Luminous composition. 2 pats G. F. Kunz
Mail bag catcher and deliverer H. H. Akers
Mandrel. Reamer S. J. Miller
Manhole cover O. H. Davison
Manure spreader J. Kniffen
Mash tuns. False bottom for H. Fiedler et al
Match delivering device C. C. Crossley
Meat support. Adjustable G. W. Holman
Mechanical movement L. Bollee
Metal jointing M. H. Bigsby
Milk and making same. Evaporated A. Just
Milling machine R. K. Le Blond et al
Milling machine table actuating mechanism J. Edgar
Mine trap door A. O. Slentz
Molasses. Treating F. Densy
Mop head and wringer O. H. Rice
Motor starter safety device F. G. Bill
Mouse trap J. F. O'Dell
Muffler C. H. Blomstrom
Music leaf turner W. F. Mains
Music sheets. Motor mechanism for unwinding and rewinding perforated I. Wieser
Music stand E. Villani
Neckband or collar spreading device F. M. Lillev
Needle D. F. Garrett
Nicotin. Obtaining A. Koelliker
Nose guard A. Wilcox
Nut lock W. S. Woods
Nut machine J. Krepp
Oil burner for lamps or stoves E. Humohrey
Oil can and funnel. Combined A. R. Seavv
Oiler. Floor W. F. Gowell
Ordnance R. Behr
Ore concentrator W. M. Reely
Ore roasting J. A. Anker et al
Organ stop action J. G. B. Astensien
Packing box J. Flaherty
Packing gasket H. C. Wiedeman
Packing. Metallic E. J. Fuller
Pail holder J. W. Thoma
Pail. Milk F. W. Lechner
Paint pail supporting device R. G. W. Foster
Pantograph A. W. Davis
Paper. Commercial W. M. Affelder
Paper. Making stretchable J. Arkell
Paper. Mechanism for making stretchable crinkled J. Arkell
Paper or other flexible material. Forming rolls of sheets of C. J. Bellamy
Paper. Process of and mechanism for making stretchable crinkled J. Arkell
Paper pulp straining apparatus F. G. Busbridge
Pavements or sidewalks. Separating tool for expansible J. H. Miller
Peat pressing machine. Wet P. Reynolds et al
Pen. Fountain I. Blair
Pencil holder A. Brown
Pile raising machine. Fabric C. Blair
Piles or the like. Protecting O. A. Stempel
Pin I. R. Short
Pipe joint. Flexible H. J. Everson
Pipe swivel connection G. R. Pickon
Pitman for die presses H. C. H. Walsh
Planter. Corn H. L. Mahely
Planter. Hand A. C. Kent
Plate lifter and holder F. Peters
Plow heel slide E. M. Touchtone
Pneumatic despatch tube system W. H. Dinspel et al
Pneumatic despatch tube system K. E. Stuart
Pneumatic tubing. Tool for repairing E. F. Pawasarat
Potato digger I. Colgrove
Potato digger E. English
Press A. E. Sowers
Printing apparatus. Blue J. H. Wagenhorst
Printing machine A. D. Klaber
Printing machinery S. G. Goss
Printing press paper feeding and delivery mechanism P. F. Rice
Pruning implement F. M. Garrison
Pulley O. Wold
Pump. Breast H. H. Halstead
Pump. Direct acting steam G. Honegger
Pump governor R. Conrader
Pump operating mechanism C. P. Bilson
Pump rod clamp F. P. Myers
Pump tension device. Oil well H. J. Gorman
Radiator A. Mathis
Rail joint C. D. Poterfield
Rail joint R. Wolhafer
Railway crossing. Cast steel R. A. Hedfield
Railway. Pleasure G. K. Horton
Railway rail clamp and support L. O'Hare
Railway station indicator O. Balogh
Railway switch I. Dellow
Railway switch construction W. H. Sammons
Railway tie. Metallic P. L. Taylor
Rake G. W. Anderson
Reflector for artificial light K. Booth
Relay J. Summers
Renovator T. J. Sullivan
Respirator or inhaler T. L. Hively
Rock drill T. E. Adams
Rock drill attachment T. E. Adams
Rocking horse B. F. Fowler
Rocks under water. Apparatus for breaking F. Iohnitz
Rolling corrugated headers for tubular boilers. Machine for reissue C. Harter
Roofing. Plate L. Hacheck
Rotary engine H. R. Valda
Rotary engine T. C. Roseland
Rotary gas engine E. R. Langford
Sample case E. G. Yates
Sand can A. L. Ackerman
Sash fastener C. Faust
Saw too. Cut off C. A. Hartmann
Saw tooth J. H. McLean
Sewing machines. Automatic engaging and disengaging mechanism for numerators for F. Meyer
Sawing machine J. H. Butterworth
Scaffold bracket J. J. Dennis
Scale. Weighing T. A. Grubbs
Scales. Automatic cut off for weighing C. Sundby
Seal F. W. Brooks
Seal lock W. T. Percival
Seed coverer and end gate for furrow openers H. F. Detering
Seed. Treatment of cotton. 2 pats I. Kitsee
Seeding machine C. P. Sester
Semaphore signal A. A. Strom
Separating apparatus. Centrifugal E. Sager
Settee or sofa and billiard or pool table. Combined J. Ehrenpreis
Sewer cesspool or catch basin P. Hannagan
Sewer cleaning device S. Shannon
Sewing machine feeding mechanism H. Manning
Sewing machine guide P. W. Leidolf
Sewing machine speed controller J. H. Macon, Jr
Shade and curtain bracket. Combination A. Borg
Shade bracket and hanger A. H. Palmer
Shaper J. Mills
Sheet feeding apparatus. Pneumatic G. F. Leiger
Sheet feeding device H. K. King
Sheet feeding machines. Automatic stopping device for G. F. Leiger
Shoe polish dip C. A. Bangert
Show case A. Jaeger
Show case O. Jaeger
Show case cover O. Jaeger
Show case or the like cover T. M. North
Signal system. Electric E. J. Adams
Signaling system J. A. Wilson
Signaling system. Electric S. M. Young et al
Skip bucket guard E. L. Messler
Skirt supporter and shirt waist holder R. C. Olson
Slip mill W. R. Macklind
Soap from hydrocarbon. Forming G. Reale
Soldering iron M. Mossig
Somersault turning machine C. C. Dean
Sound dissipating earpiece H. G. Pape
Sound reproducing machine J. Wellner
Spinning and twisting machine spindle G. O. Hadfield
Springwork clip F. A. Neider
Springwork clip A. Freschl
Square. Separable L. Brodt
Square. Try D. F. Larkin
Stacker. Straw C. B. Wood
Stalk rake A. C. Thompson
Stamp. Rubber J. F. Tenney
Stamp. Time W. I. Follett
Starting gate J. M. Flynn
Steering gear. Steam R. Bodenlos
Stencil holder S. M. Wixcel
Stiffening material E. K. Warren
Stock. Antijumping device for live J. J. Koger
Stock spraying device. Live I. D. Smelser
Store service apparatus C. J. Miller
Stove charcoal burning attachment M. C. Wood-Allen
Stove or range fire box lining. Cook B. J. Taylor
Stoves, ranges, &c. Portable attachment for F. J. Will ck
Stovepipe thimble E. W. Reed
Stud holder. Shirt H. T. Schiedrich
Submarine caisson and tunnel construction P. J. Gildea
Sugar. Refining F. Deuss
Surgical instrument A. R. Waldo
Swing M. W. Yeager
Tank G. C. & A. C. Pyle
Target J. Herold
Tarpaulin rack B. E. Lockett
Telegaphy P. B. Delany
Telegraphy. Wireless F. Braun
Telephone annunciator and jack. Combined D. W. Campbell
Telephone. Code signaling C. T. Mason
Telephone cut off H. Mauring
Telephone system. Coin controlled C. W. Mahon
Telephone transmitter H. P. Clausen
Thread and needle case P. Ritzenthaler
Tile and tiling J. H. Munro
Tile building block and forming same H. L. Hinton
Tile covering for girders H. L. Hinton
Tile girder covering H. L. Hinton
Tile. Undercut W. H. Cammeyer
Tire fastener. Vehicle A. L. Dixon
Tire fastening for wheels. Rubber G. T. Reed
Tire shield. Pneumatic J. Marsden
Tracing apparatus L. B. Benton
Track. Revolving H. N. Owen
Train order cabinet R. M. McCleskey
Transit. Pocket W. D. Verchore
Trolley J. H. Clark
Trolley catcher and retriever W. W. Geiser
Trolley check. Pneumatic A. G. Cassidy
Truss W. S. Hobson
Tube cutting apparatus E. A. McCallum
Tubes of pulp, paper, &c. Finishing and standardizing E. Moxham
Tubing. Armored flexible E. T. Williams
Turbine H. Roeske
Turbine L. E. Truesdel
Twisting frame stop motion O. Williams
Tree making and setting machine S. A. Rhisey
Umbrella W. E. Meulien
Underreamers or the like. Latch for E. North
Upholstery. Method of and apparatus for manufacturing A. F. Schramm
Vacuum pan H. W. Buschmeyer
Valve H. C. Root
Valve. Flush J. A. Callahan, Jr
Valve gear R. C. Carroll
Valve. Reducing G. M. Hilger
Valve Relief J. L. Doherty
Valve. Relief and back pressure F. Heunehohle
Valve. Reversing H. A. Rodecker, Jr
Vaporizer and burner N. L. Rigby
Vault. Burial R. C. Browning et al
Vegetable masher E. Walker
Vehicle C. P. Balch
Vehicle J. D. Colt
Vehicle body brace. F. W. & C. W. Hammond
Vehicle or similar apparatus. Dumping A. R. Piper
Vehicle running gear C. O. Wyman
Vehicle top. Detachable H. L. Call
Vehicles. Differential gearing for motor C. C. Hill
Velocipede M. McGowan
Vending machine T. N. Goff
Veterinary operating table F. G. Atwood
Vise. Bench K. L. Erickson
Vise. Bench B. L. Williamson
Wagon chafing plate J. Williams
Waist lengthener J. H. & I. Taylor
Wall for buildings. Hollow tile H. A. Streeter
Warper comb for coarse yarns A. E. Rhoades
Washing compound T. L. Thompson
Watch hair spring stud J. W. Gibson
Watch hand centering holder A. F. Robbins
Water closets or other fixtures. Flushing device for F. H. Mason
Water tube boiler D. Roberts
Water tube boiler F. Burger
Wave forms. Propagating D. C. Jackson
Weather boarding J. Fisher
Weighing machine. Automatic A. L. F. Mitchell
Well packing. Oil A. J. Hubbard
Wheel D. C. McCann
Wind wheel A. von Muntean et al
Winding and feeding mechanism C. J. Bellamy
Windlass. Hoisting A. Chubb, Jr
Window construction E. H. Lunken
Wire to screws, bolts, or the like. Tool for connecting C. C. Sibley
Wire unwinding device J. J. Foss
Work table M. E. Doherty
Woven fabric H. Hardwick
Wrench R. L. Combs
Wrench F. G. Cornell
Wrench M. A. Smith
Wrench T. J. Baldwin

DESIGNS.

- Badge or similar article T. J. Dunn
Bank. Savings C. A. Bailey
Bridle bit F. C. Monier
Brushes, mirrors, or similar toilet articles. Back for G. H. Berry
Clock case T. B. Stephenson, Jr
Knob or similar article. Door F. D. Owen
Lavatory J. F. Kelly
Mirrors, brushes, or similar toilet articles. Back for 2 pats G. H. Berry
Pencil. Lead F. McIntyre

Issued May 23, 1905.

MECHANICAL PATENTS:

- Advertising device J. Ovary
Advertising door closer L. J. Long
Advertising writing table W. H. Reiff
Air brake system J. E. Shaw
Amalgamating plate plater and amalgamating plate cleaning compound O. W. Zane
Amalgamator. 2 pats T. J. A. Macdonald
Amusement device J. C. Boyle
Annunciator G. F. Atwood
Atomizer W. Sams
Automobile M. J. Davin
Awning winding box J. Rickert
Azimuth instrument B. H. Camden
Ball joint J. D. Walsh
Balls. Constructing golf F. H. Richards
Bandage roller E. F. Frost
Barrel. Metal H. Wehlhahn
Battery W. C. Banks
Battery solution F. M. Holmes
Bearing. Roller R. F. Bower
Bed W. C. Burdette et al
Bed bottom. Spring S. I. Bridgewater
Bed. Invalid W. McLennan
Bed. Swinging or folding J. C. Bahr
Revel and square J. Graff
Binder. Loose leaf G. McBride
Binder. Loose leaf C. H. Brown
Bird cage A. B. Hendryx
Biscuit cutter M. Savidge
Bit M. E. Zeller
Boilers. Hot water purifier for G. Y. Bonus
Bolt and nut cutter W. B. Carolus
Bolt blank heating apparatus R. R. Jones et al
Book cover. Check D. A. Templeton
Boot or shoe. Composite G. F. Butterfield
Boring machine. Multiple bit J. M. Garfield
Bottle. Non refillable J. E. Moseman
Bottle. Non refillable F. A. Heath
Bottle washing apparatus D. Boyle
Bottle. Means for guarding against the reuse of W. B. Bostwick
Bottling machine R. Pfaff
Braiding machine carrier J. & G. F. McCahey
Brake beam fulcrum. Adjustable J. A. Matthews
Brake shoe L. E. Robinson
Brick handling truck J. J. Gledhill
Broom moistening and sprinkling attachment J. P. Taylor
Brush handle. Shaving J. L. Erskine
Brush holder A. A. Low
Buckle L. Cabalka
Buckles. Device for detachably securing bands to E. M. Mitchell et al
Building block O. D. Inman
Building block C. W. & R. Meara
Building blocks. Machine for manufacturing E. H. Reed
Burglar alarm J. E. Liess
Burial casket C. E. Myers
Button drilling machine S. A. Brandon
Calculating apparatus E. Bayem
Calipers. Micrometer F. Spading
Camera. Photographic E. L. Hall
Cameras. Half tone screen holder for photographic J. S. Ditty
Camphor. Making K. Stephan et al
Candle receiving rack S. H. Leavenworth
Cane loading apparatus V. Goetz, Jr
Cannon. Blank cartridge M. J. Shimer
Car. Convertible E. T. Robinson et al
Car coupling C. W. Rowell
Car dump. Automatic revolving A. Moore
Car folding guard. Street H. F. Vogel
Car. Fruit, produce, and refrigerator E. M. Phillips
Car grain door. Railway K. Osel
Car. Railway H. J. Bayard
Car replacing frog C. L. Sullivan
Car. Tank C. L. Rogers
Car. Tank W. F. Kiesel, Jr
Carburetor for hydrocarbon engines C. P. Mingst

Car window sash balance . . . K. Schliepmann
Cash registers . . . Automatic . . . J. Frydman et al
Caster . . . J. A. Linn et al
Casting apparatus . . . 2 pats . . . W. S. Weston
Casting machine . . . D. Baker
Cellulose . . . Triacetate . . . A. Eichengrün et al
Cement block mold . . . O. S. Lamberson
Chair, bed, couch, or the like for use in surgical operations or examinations . . . P. A. Gayon
Channel bars, &c. . . Straightening mechanism for . . . C. S. Simmers
Chart, Tailor's . . . J. R. Van Dame
Check or ticket . . . Sectional . . . P. J. Menahan
Cheese cutter . . . J. P. Dunn
Chest handle . . . F. D. Judkins
Christmas tree candle holder . . . H. Buhning
Chuck . . . Automatic . . . J. Pearson
Chute delivery controlling device . . . J. Piza
Clamp feeding device . . . J. J. Foss
Clasp . . . G. H. Taylor
Clock . . . Cash register time . . . F. C. Osborn
Clock system, Electric . . . W. A. Roberts et al
Clothes line reel . . . W. J. Connell et al
Coal screen . . . J. Hickman
Coffin . . . Hermetically sealed . . . C. H. Hiser
Coin controlled apparatus . . . I. Kitsee
Coin controlled apparatus . . . Fraud preventing device for . . . F. P. Cox
Coining or other press . . . O. Smith
Coke quenching apparatus . . . F. R. Still
Collar fastening device . . . R. Mount
Collar . . . Horse . . . F. A. Klappauf et al
Comb . . . J. Taaffe et al
Combining machinery . . . S. Shackleton
Compass deviation corrector . . . B. H. Camden
Concentrator . . . H. H. Campbell
Concrete block mold . . . F. C. Eckhard
Condenser . . . Reissue . . . R. D. Tomlinson
Connector support and casing . . . W. O. Mundy
Controlling mechanism . . . G. E. Turner
Conveyer . . . 2 pats . . . B. H. Alvey
Core drill . . . C. A. Terry
Core drill apparatus . . . C. A. Terry
Core or mold making machine . . . J. E. Burkitt et al
Corn sheller . . . G. F. Connor
Corset . . . F. V. Sionsky
Cotton chopper . . . B. L. Fikes
Crate . . . Banana shipping . . . F. Schmitz
Cream ripener . . . T. L. Valerius
Cream . . . Ripening . . . T. L. Valerius
Creasing and folding machine . . . J. R. Little
Cultivator . . . W. F. Hartig
Cultivator . . . R. Pederson
Cultivator attachment . . . J. M. Etman
Current commutator machine . . . Alternating . . . G. Winter et al
Current machine . . . Alternating . . . C. W. Johnson
Currycomb . . . S. Johnston
Cutting table . . . T. M. Lillard
Cycle saddle . . . J. B. Brooks et al
Desk light . . . T. Smith
Dish or the like warmer . . . N. F. Boniface
Display case . . . Revolving window shade . . . H. Klein
Display rack . . . W. W. McKinley et al
Display stand . . . A. Josephson
Distilling apparatus . . . Turpentine . . . H. Hirsh
Door hanger . . . T. Plie
Door securer . . . H. Notthoff
Draft equalizer . . . C. B. Cowles
Drain, gas trap, and backwater trap combined . . . F. Shay
Drier and separator . . . J. Waterhouse
Drip pan . . . Non explosive . . . H. C. Weitzel
Dust blower and sprayer . . . A. J. Collins
Dust proof wheel box . . . M. Sklovsky
Dye and making same . . . Azo . . . J. Hagenbach
Dye and making same . . . Nitroazo . . . J. Hagenbach
Electric current controlling means . . . G. J. Dorman
Electric cut out switch . . . J. Frechette
Electric machine . . . A. F. Hemidway
Electric machine . . . Dynamo . . . E. C. Wright
Electric machine . . . Dynamo . . . B. A. Behrend
Electric motor controller . . . W. J. Warder Jr
Electrical apparatus . . . Inductance and induction coil for . . . D. R. Lovejoy
Electrical device or circuit . . . R. J. Hewett
Electroplating apparatus . . . C. T. Pratt
Elevator door opening and closing device . . . H. Watson
Elevator load regulated starting and stopping device . . . L. W. Southgate
Elevator safety lock . . . L. Christiansen
Engine frame bulkhead . . . L. Skinner et al
Engine igniter operating device . . . Gas or vapor . . . C. B. Harris
Engine receiver and reheater . . . Compound . . . F. Burger et al
Engine reversing mechanism . . . Explosion . . . T. L. & T. J. Sturtevant
Engine self oiling mechanism . . . L. Skinner
Engraving machine . . . F. M. Swayze
Excavator boom . . . E. L. Byron
Expansible fluid engine . . . J. T. Halsey
Explosive engine . . . H. B. Steele
Explosive engine . . . J. D. Maxwell
Eyeglass mounting . . . F. C. Merry
Fabrics . . . Manufacturing colored . . . C. Bucher
Fan base adjustment . . . C. R. Meston
Fastening device . . . L. Rodney
Feed water purifier . . . F. W. Cowern
Feeder . . . Time stock . . . W. B. Hayes
Fence tie . . . E. J. Bowerfind
Fence . . . Wire . . . E. F. Shellabarger
Fence . . . Wire . . . J. E. Fredrick
Ferrocromium . . . Producing . . . E. F. Price
Fiber cleaning machine . . . Vegetable . . . J. H. McCauley et al
File box . . . J. C. Kirby
Filter beds for sewage . . . Apparatus for automatically and alternately charging and discharging . . . W. A. Moore
Fire alarm apparatus . . . H. T. Gale et al
Fire apparatus . . . J. R. Hopkins
Fire dog or andiron . . . H. C. Patton et al
Fire extinguishers . . . Valve for automatic . . . J. Hunt
Fire plug hose hitch . . . J. Donvan et al
Fire shutter . . . Automatic . . . G. F. Hall
Firearm . . . Double barreled breech loading . . . O. A. Flocken
Firearm extractor . . . F. F. Burton
Fish line snell attachment . . . G. Yoerger
Fishing float . . . D. M. Jones
Fishing reel . . . H. B. Carlton

Fishing rod . . . L. L. Bartlett
Flange . . . Fly . . . F. C. Billings
Flange wrench . . . J. F. Reddy
Flat iron . . . Gas heated . . . A. Lafitte
Flax, hemp, or such like . . . Rippling machine, applicable to . . . C. F. Petermann
Fleecing or napping machine attachment . . . F. Chatfield et al
Floor and centering . . . W. N. Wight et al
Flue cutter . . . D. E. Dozer
Fluid fuel burner . . . F. H. Lynn
Fluid pressure brake . . . H. R. Mason
Fluid pressure equalizing device . . . S. Manning et al
Flushing apparatus . . . C. W. Lendh
Fly trap . . . Horse . . . J. McConnell
Folding box . . . Reissue . . . Z. B. Webb
Fruit cleaner . . . G. W. Harvey
Fruit picker's bag . . . F. L. Hepner
Fumigating compound . . . H. V. Walker
Fumigation . . . H. V. Walker
Funnel . . . W. T. Taliaferro
Furnace . . . F. C. Armistead
Furnace . . . W. N. Best
Furnace . . . J. H. Anderson
Furnace charging mechanism . . . Blast . . . D. Baker
Furnace grate . . . Boiler or other . . . W. G. Crosthwaite et al
Furnace radiator . . . R. A. May
Furnace wall construction . . . D. Baker
Fuse for shells . . . Percussion . . . J. B. Semple
Garment hanger . . . P. Steiger
Garment holder . . . M. M. Adams
Gas burner . . . Incandescent or other atmospheric . . . G. & J. W. Bray
Gas burner . . . Open air . . . C. A. Harvey
Gas condensing apparatus . . . O. N. Guldin
Gas . . . Generating combustible . . . C. Ellis
Gas generator . . . G. Apfel
Gas generator . . . Acetylene . . . 7 pats . . . C. W. Beck
Gas generator interlocking mechanism . . . F. Thuman
Gas lighting burner . . . Incandescent . . . J. W. Bray
Gas making apparatus . . . O. N. Guldin
Gas . . . Manufacturing combustible . . . C. Ellis
Gas producer apparatus . . . C. Ellis
Gate . . . H. Holste
Gear for motors . . . Transmitting and reversing . . . W. Bruns
Gearing . . . Variable . . . R. N. Dyer
Gearing . . . Variable speed . . . R. N. Dyer
Gearing . . . Variable speed . . . E. H. Belden
Gearing . . . Variable speed . . . J. E. & J. C. Caps
Geodetic or similar instruments . . . Means for suspending the supporting rods of . . . A. Pfeiffer et al
Glass blowing machine . . . C. J. Koenig
Glass furnace pot filling apparatus . . . J. T. Turner
Glass insulators or other glass articles . . . Machinery for the manufacture of . . . H. M. Brookfield
Glassware manufacturing machinery . . . H. M. Brookfield
Grain separator . . . F. S. Osborne
Grapple . . . V. Goetz, Jr
Grinding machine . . . E. C. Schrader
Grinding mill . . . H. W. Clough
Gypsum mortar and utilizing dead-burnt gypsum . . . Improving . . . K. Heintzel et al
Hammer . . . Power . . . G. Bignell
Hammer . . . Steam . . . A. L. Eicher
Harness attachment . . . A. S. Rudolph
Harness or the like . . . Draw hook for . . . H. Ruppert
Harrow . . . G. Lettenmeyer
Harrow draw bar . . . B. P. Lynds
Harrow . . . Riding . . . W. Merrill
Harvester . . . Corn . . . 2 pats . . . D. E. Anthony
Hay press . . . C. A. Bridges
Hay ricker . . . J. N. Sorrell
Heat . . . Device for effecting the radiation of . . . S. W. Zent
Heater . . . C. E. McPherson
Heel polishing machine . . . W. C. Corman
Hinge . . . Seat . . . A. A. Lytle
Hoe or weeder . . . C. W. Stuart
Hoisting apparatus . . . T. Ogden
Horse releasing mechanism . . . A. P. Weeks
Horseshoe . . . F. C. & W. T. Canavan
Horseshoe . . . Removable . . . A. R. Ward
Hose coupling . . . J. F. Joy et al
Hose coupling . . . M. Hendricks
Hot air register . . . C. H. Foster
Hub ferrule . . . E. Lazrowitch
Hydrant or fire plug . . . E. F. Bohne
Hydrocarbon burner . . . G. S. Bennett
Ice handling machinery . . . H. H. Porter, Jr
Infusion device . . . M. H. French
Ingots . . . Compressing metal . . . R. W. Hunt
Ink well . . . W. C. Galbraith
Insect trap . . . A. C. Crofford
Jar and fastener therefor . . . J. J. Ranney et al
Jar closure . . . J. J. Ranney et al
Journal bearing . . . Spring swivel . . . J. W. Jones
Knitted fabric . . . Sectional roll of . . . F. B. Wildman
Knitted fabrics . . . Cutting and winding mechanism for . . . F. B. Wildman
Knitting machine . . . E. J. Franch
Knitting machine cam adjusting device . . . Circular . . . F. B. Wildman
Knitting machine . . . Circular . . . W. T. Barratt
Knitting machine stop motion . . . T. W. Tustin
Ladder . . . W. G. Bertram
Ladder . . . R. Schilling
Lamp . . . Acetylene gas generating . . . C. W. Beck
Lamp bulbs . . . Apparatus for exhausting incandescent . . . C. Hoelscher
Lamp burner shade support . . . F. N. Cooley
Lamp . . . Electric . . . M. W. Hanks
Lamp . . . Electric . . . E. Bennett
Lamp . . . Electric glower . . . H. N. Potter
Lamps . . . System of distribution for multiple glower . . . A. J. Wurts
Latch and lock . . . C. A. Prescott
Latch . . . Gate . . . W. E. Jones
Lathe apron . . . N. D. Chard
Lathe head stock . . . N. D. Chard et al
Lathe turret actuating mechanism . . . J. C. Potter et al
Laundry . . . M. S. Cobb
Leaf and binding device . . . A. J. Hansell
Leaf preserver . . . S. Friedman
Linotype machine . . . P. T. Dodge
Linotype machine . . . R. F. Mercer

Liquid meter . . . J. W. Ledoux
Locomotive tender . . . C. J. McCarthy
Locomotive wheels and their accessories while assembled . . . Apparatus for turning . . . J. Moll et al
Loom . . . Automatic filling replenishing . . . G. H. Haworth
Loom for weaving pile fabrics . . . J. McKay
Looms . . . Multiplier for dobby . . . A. Girard et al
Loop banding machine . . . A. E. Rhoades
Lubricating apparatus . . . H. Hamel
Lubricating compound . . . J. Menatovich
Mail bag delivery apparatus . . . M. J. Finn
Mangle . . . C. T. Gilmore
Manhole cover . . . J. F. Dorsey
Manure spreader . . . L. Kniffen
Manure spreader . . . A. F. Manning
Match making machine . . . L. H. Montross
Mattress frame or support . . . A. Mardis
Measuring device . . . Check controlled . . . J. Kies
Measuring the deflections of rails or girders . . . Device for . . . E. Hermsdorf
Medical ozonizer . . . M. Otto
Metal melting furnace . . . Portable . . . J. Porteous
Metals and oxides from solutions . . . Recovering . . . A. Gutensohn
Metals or alloys . . . Producing low carbon . . . 3 pats . . . E. F. Price
Metallic compounds . . . Reducing . . . 2 pats . . . E. F. Price
Microphone . . . P. J. Tarteil
Milk machine . . . L. Burrell
Milk machine . . . Cam . . . S. A. Hand
Mirror support . . . E. A. & E. W. Thayer
Musical instrument . . . F. Leber
Musical instrument player . . . Mechanical . . . L. U. Jobs
Nitrated carbohydrates . . . Making . . . A. Hough
Oil burner . . . Crude . . . J. W. Pippin
Oil burner . . . Generating . . . P. S. Spiller
Oil can . . . J. W. Bullock
Oil gas furnace . . . J. H. Anderson
Oil press mat . . . 2 pats . . . R. F. Werk
Oiling device . . . Axle . . . C. M. McFarland
Oiling roads, levees, &c. . . I. E. Smith
Oidance . . . W. R. Smith
Oven . . . Baker's . . . B. Ycre
Oxygen from hypochlorites . . . Production of . . . G. F. Jaubert
Package feed mechanism . . . F. M. Peters et al
Packing . . . A. C. Brantingham
Packing . . . Metallic . . . F. Neuzel
Packing rotating shafts . . . C. A. Parsons
Packing . . . Shaft . . . W. L. R. Emmet
Paint and preparing same . . . H. V. Dunham
Pan and stove lid lifter . . . Combined . . . E. L. Watrous
Pantograph for embroidering . . . M. Trautmann
Paper bag machine . . . W. A. Lorenz
Paper feeding machine . . . T. C. Dexter
Pattern . . . Printed dress . . . W. Freeman
Pen . . . Fountain . . . F. E. Shaw
Phonographic recorder . . . P. Weber
Phonographic records . . . Duplicating . . . T. A. Edison
Photographic developing apparatus . . . C. H. Shaw
Photographic printing paper . . . Sensitive . . . E. C. Morgan
Pile of fabrics . . . Machine for cutting . . . W. G. M. Keighley et al
Pipe bending machine . . . F. M. Stambaugh
Pipe coupling . . . P. N. Staff
Pipe rounding device . . . J. F. Linehan
Pipes . . . Making cement lined metal . . . J. T. Langford
Pipes . . . Manufacture of . . . G. H. Lloyd
Pipes . . . Manufacture of earthenware sanitary . . . R. Stanley
Pistol breech sight . . . Automatic . . . H. Hirsh
Plane handle . . . Adjustable . . . F. A. Shontz
Planter and fertilizer distributor . . . W. E. H. Searcy
Planter and fertilizer distributor . . . Combined . . . J. A. Sechrest et al
Planter . . . Corn . . . L. P. Graham
Plastic material mold . . . A. W. Mason
Platform . . . Adjustable . . . H. Boelter
Pliers . . . J. D. Harper
Plow . . . A. J. Johnson
Plow . . . A. Castelin
Plow . . . A. A. Pearce et al
Plow . . . Combined grubbing, subsoiling, and turning . . . H. W. Toler
Plow harrow attachment . . . R. H. Richards
Plow soil pulverizing attachment . . . H. A. Wilberg
Plumb . . . J. W. Auld
Pneumatic despatch tube apparatus . . . 2 pats . . . O. S. Pike
Pneumatic separator . . . D. L. Adelsperger
Pneumatic spring . . . B. Borland
Pocket . . . Secret double safety . . . C. H. Scott
Portable drill . . . P. R. Antou
Power transmission mechanism . . . Variable speed . . . A. N. Olson
Pressure regulating device . . . C. A. Carlson
Printing device . . . Time . . . T. Carney
Printing machine . . . W. Scott et al
Printing machine . . . W. Scott
Printing press . . . Flat bed cylinder . . . W. S. Huson
Printing press . . . Platen . . . M. Rockstroh
Printing presses, &c. . . Bed roll or antifriction roller arrangement for . . . G. P. Fenner
Prune dipper and spreader . . . C. J. Kurtz
Pulp rearing and paper making machinery . . . H. Parker et al
Pump . . . Centrifugal . . . E. G. Harris
Pump . . . Centrifugal . . . E. S. Lea et al
Pump . . . Centrifugal or velocity . . . L. H. Nash
Pump . . . Self measuring oil . . . 2 pats . . . J. B. Davis et al
Punch feed mechanism . . . W. M. Greenleaf et al
Punching machine carrying and guiding apparatus . . . J. J. Davies
Rail joint . . . J. W. Turton
Rail joint . . . P. F. Snyder
Rail joint . . . C. Haman
Rail joint . . . Compromise . . . B. Wolhaupter
Rail tie . . . E. Powell
Railway brake apparatus . . . C. J. Fisher
Railway cross tie made of concrete . . . Steam or electric . . . A. W. Wolfe
Railway crossing . . . A. Hollinger
Railway frog . . . J. E. Graham
Railway frog . . . G. D. Smith
Railway grip . . . Cable . . . W. O. Gunkel
Railway rail anchor . . . G. F. Fields
Railway system . . . Protected third rail electric . . . H. A. Thomsen

Railway signaling system . . . B. F. Saurman
Railway tie . . . J. L. Pope
Railway tie . . . Composite . . . J. MacMartin
Railway tie . . . Metal . . . R. E. L. Maxey
Railway track rails from creeping . . . Means for preventing . . . J. K. Leighty
Range boiler . . . V. Wilhelm
Razor . . . F. Kampfe
Records or blanks . . . Producing molded . . . W. H. Miller et al
Reflector . . . W. D. Ryan
Refrigerator door fastener . . . R. E. Jones
Reir guide . . . Harness . . . C. H. Young
Rifle carrier . . . Repeating . . . H. B. Boyer
Rock drill mount . . . M. Kuzel
Rotary cleaner . . . W. D. Labadie
Rotary engine . . . A. F. Ford
Rotary engine . . . Reversible . . . H. E. Parry et al
Rotor construction . . . L. H. Dunker
Rubber balloon bags . . . Mold for making . . . H. B. Faber et al
Saddletree . . . A. Arter
Sample case . . . W. Thompson
Sanitary appliance . . . J. H. McCall
Sash balance connection . . . A. Weingaertner
Sash fastening . . . Storm . . . F. Janeczek
Sawing machine . . . Wood . . . J. F. Rosback
Scale . . . Price computing . . . I. C. Koehne
Scenery trimmer . . . J. H. Channon
Seal . . . H. Lohse
Seal or lock . . . Metal . . . F. E. Merrill
Seeding machine . . . S. H. Jones
Sewing machine . . . Chain stitch . . . J. J. M. Chauvet et al
Sewing machine cutter attachment . . . B. H. Zimmerman et al
Sewing machine . . . Double chain stitch . . . J. J. M. Chauvet et al
Sewing machine folding attachment . . . J. H. De Nike
Sewing machine guide . . . H. Bryce
Sewing machine . . . Shoe . . . Z. T. French et al
Shade adjuster . . . Window . . . W. C. Organ
Shade . . . Window . . . M. L. Hansen
Shaft hanger . . . C. O. Wood
Sheep shearer . . . H. S. Burley
Shell bracket . . . G. C. Kock
Shutter attachment . . . Window . . . L. F. Leininger
Shuttle spindle . . . W. R. Bell
Sign . . . Working . . . C. A. McNeal
Silk throwing mechanism . . . J. Salathe et al
Skirt . . . E. E. Harman
Skirt marker . . . J. Johnson
Smelting furnace . . . C. E. Glafke
Smelting iron ores and producing ferrochromium . . . E. F. Price
Smelting metallic compounds . . . E. F. Price
Smelting refractory ores . . . E. F. Price
Smoothing machine . . . Edge . . . W. Bartholomew
Snow plow . . . E. J. Grant
Soap cake . . . L. S. Samuel
Sound record or blank . . . W. H. Miller et al
Sound records and blanks . . . Apparatus for making . . . W. H. Miller et al
Spark and soot arrester . . . R. E. Springler
Spark plug . . . G. L. Herz
Spool . . . G. H. Reynolds
Spool holder . . . W. E. Villinger et al
Spring trip . . . F. C. Warne
Sprouting apparatus . . . J. Von der Kammer
Stacker . . . Straw . . . J. B. Bartholomew
Stall . . . Cattle . . . A. Jensen
Stamp affixing device . . . J. D. Blagden et al
Stanchion . . . C. M. Paxton
Staple setting implement . . . F. Wiseman
Steam engine . . . H. F. Frisbie
Steam generator . . . J. S. Kidney
Steam generator . . . Flash . . . R. J. Miner
Steam separator . . . E. F. Osborne
Steam trap . . . J. E. Swendeman
Stone block molding machine . . . Artificial . . . A. Peterson
Stone blocks . . . Molding artificial . . . E. E. Crouch
Stone mold . . . Artificial . . . E. E. Crouch
Stop motion for textile machinery . . . Electric . . . J. B. Whitney
Stump burner . . . C. N. Hubbard
Suit cases, &c. . . Stay for . . . F. L. Demartini
Suspensers . . . E. E. Robertson
Sweep mill . . . A. A. Ambler
Swing gate . . . Farm . . . J. A. Clements
Swingletree or doubletree . . . E. Haiman
Switch actuating mechanism . . . A. Matz
Switch operating mechanism . . . E. Moore
Tag . . . C. E. Mitchem
Talking machine sound conductor . . . A. C. Wiechers
Tanks . . . Tools for cutting holes in metal . . . M. Martin
Telephone call attachment . . . J. Harveston et al
Telephone desk attachment . . . Portable . . . E. Ocumpaugh
Telephone multiple switch . . . C. V. Beaver
Telephone . . . Party line . . . H. M. Bascom
Telephone switch . . . Electric . . . G. F. Archer
Telephone system . . . J. G. Roberts
Telephone transmitter . . . H. M. Gail
Thermostat . . . H. H. Blackman
Thill and tongue support . . . W. Padden
Threshing machine . . . F. Zucker
Tire . . . F. Mesinger
Tire bolt wrench machine . . . R. L. V. Mudhenk
Tire . . . Pneumatic . . . C. Bellingham et al
Tire . . . Vehicle . . . G. S. Squires
Tire . . . Vehicle . . . T. R. Palmer
Tongue switch . . . W. C. Wood
Tool . . . Combination . . . C. Heilrath
Tool handle . . . C. E. Borner
Tool handle . . . W. R. Reynolds et al
Tool holder . . . Boring . . . J. & W. Carr
Tool step feed mechanism . . . Machine . . . J. Mills
Toy . . . O. A. Prior
Trace carrier . . . T. C. Burton
Trammel . . . F. E. Buxton
Trolley . . . J. B. Humphrey
Trousers stretcher . . . R. C. Mitchell
Trucks or similar vehicles . . . Frame for mine . . . G. Stott
Trunk . . . Display sample . . . S. E. Winship
Trunk fixture . . . O. Rangnow
Truss . . . G. L. Gerard
Tubular fabric . . . Producing . . . J. A. Firsching
Tufting apparatus . . . E. C. Hartsborn
Tug . . . Harness . . . H. H. Drohn
Turbine . . . A. Davidson
Turbine . . . Elastic fluid . . . A. R. Dodge
Turbine . . . Steam . . . 4 pats . . . J. Stumpf
Turret attachment . . . R. G. Denyes

Typewriting machine W. J. Barron
 Typewriting machine B. A. Brooks
 Typewriting machine W. C. Farnum
 Typewriting machine C. D. Rice
 Typewriting machine S. Nielsen
 Umbrella stick E. C. Kuhn
 Urethral or other cavities, Irrigator for E. S. Estlingen
 Valve Center T. Redman
 Valve for explosive engines, Starting H. A. Tobey
 Valve gear mechanism M. E. Clark
 Valve mechanism W. R. Templeton
 Valve, Train pipe E. H. Gold
 Vehicle top A. W. Hall
 Vehicle traction attachment W. W. Clark
 Vehicle, Two wheeled T. V. Edwards
 Vending machine L. V. Diederoff et al
 Veterinary appliance, Electrical A. Paxton
 Vise, Universal H. J. Valentine
 Wagon corner, Device W. T. Johnson
 Wagon dump and elevator J. Q. & A. T. Adams
 Washing machine P. P. Kiel
 Watch J. Mazer
 Watch winding indicator 5 pats. J. Mazer
 Water cleansing device W. R. Park
 Water dividing furrow joint O. H. Hicks
 Water elevator W. A. Douglas
 Water gauge J. McAfee
 Water purifying plants, Lime saturator for E. Declercq
 Water tube boiler S. Thurstensen
 Weighing apparatus, Milk R. C. Mealey
 Weighing mechanism J. B. Salo et al
 Weighing mechanism for refrigerators 2 pats. J. B. Salo et al
 Welding boiler tubes R. L. Woodrum et al
 Whip socket and rein holder, Combined P. Jacobs
 Winding spool spindle and bearing therefor J. Salathe et al
 Window guard J. A. Swenson
 Window lock, Automatic ventilating H. Ernst
 Window screen H. L. Roberts
 Window, Self closing F. C. Kasch
 Wire stretcher C. F. Lamp
 Wood grinder C. Fancher
 Wrench H. J. Wilson
 Wrench L. Haneke
 Wrench H. G. Weatherill

DESIGNS.

Badge T. A. Bramberry
 Picture frame 4 pats. W. L. Cooper
 Picture frame ornament E. W. Habermas
 Silver, plated, or similar ware, Metal ornament for 3 pats. G. H. Berry
 Spoons, forks, or similar articles, Handle for G. Strothaker
 Tableware, Bas relief border for metallic A. Steffin

Issued May 30, 1905.

MECHANICAL PATENTS.

Abrasive wheel mounting C. H. Norton
 Accounts, &c. Means for keeping individual balances in book M. M. Wheeler
 Acid, Making hydrohalogenic F. W. Westhauser
 Air brake and car coupling combined, Automatic L. C. Cary
 Air brake apparatus A. B. Currier
 Air brake pipe coupling J. H. Phillips
 Air cooling device H. H. Pierce et al
 Air purifying means F. J. Talbot
 Alkaline metals, Apparatus for obtaining oxides of C. W. Roepper et al
 Ammonia, Manufacturing W. Hoopes
 Animal trap E. H. Baugh
 Aparejo H. W. Daly
 Ash pan F. Cris
 Asphaltic composition J. B. Swindle
 Automobile vehicles, Electric motor for E. Cantano
 Axle lubricating device, Vehicle P. Le Sueur
 Bag holder W. Terry
 Bagasse burning furnace H. G. Ginaca et al
 Barrel receiving and handling apparatus L. H. Reynolds et al
 Basin, Wash L. Lewis
 Bearing, Disk drill J. Faust
 Bearing, Self adjusting A. Van Wormer
 Bearing, Self aligning I. Deutsch
 Bearing, Ventilator shaft T. M. Carpenter et al
 Bed and cradle, Combined folding C. Bakrow
 Bed, Invalid W. C. Sennett
 Beds or other articles of furniture, Framework and spring system for J. H. Serrard
 Bedstead D. W. Whitaker
 Binder, Temporary G. C. Shepherd
 Blasting purposes, Waterproof explosive cap for E. W. Keith et al
 Blower and exhaustor, Rotary T. W. Green
 Boat or launch J. C. Burcher
 Boat or launch, Electric H. Page
 Boiler blow off mechanism W. R. McKee, Jr
 Boiler setting, Steam M. J. McCarthy
 Booster sets, Means for protecting F. L. Sessions
 Bottle closure H. S. Brewington
 Bottle dip receptacle J. H. Jericho
 Bottle, Non refillable J. C. Condo
 Bottle stopper fastener S. H. Patterson
 Bottles, flasks, &c. Manufacture of C. Boucher
 Bottles or other vessels, Stopper for G. West
 Brake hanger W. H. Wilkinson
 Brake shoe J. R. Cardwell
 Brake shoe and step connection, Combined vehicle F. A. Hawk
 Breast drill P. H. Jaegers
 Brick machine W. P. Grath
 Brick or artificial stone, Making L. F. Kwiatkowski
 Brick press E. D. Church
 Bridle blind D. A. High
 Bronzing machine M. Fritzsche
 Brooder, Poultry E. F. Hodgson
 Broom and brush holder J. Hutchinson
 Buckle A. F. P. Stenzy
 Builder's block G. J. Roberts
 Building block for cylindrical structures F. T. Hellyer

Building blocks, Machine for the manufacture of hollow F. W. Hagloch
 Building or other blocks, Machine for molding H. S. Palmer
 Burglar alarm house protector J. Lyon
 Burial case L. V. Rathbun
 Button and loop clasp W. F. Osborne
 Button machine W. H. Hargraves
 Cabinet A. Pederson
 Caddy bag J. H. Winslow
 Cam G. S. McLeod
 Can top, Powder A. B. Crouse
 Caudy, Making F. H. Richards
 Car brake J. C. O'Neill
 Car coupling, Automatic street L. C. Cary
 Car door J. Swanson
 Car door mechanism C. A. Lindstrom et al
 Car grab handle, Railway S. M. Curwen
 Car, Grain E. B. Gilleland et al
 Carbon break field switch E. M. Hewlett
 Carbureter, Explosive engine E. Haynes
 Cards, Game L. Wade
 Catamenial appliance M. S. Merkle
 Cattle guard C. W. Booth
 Cattle guard J. Costello et al
 Cement post J. B. Flickinger
 Centering machine F. Jackson
 Checkrein H. P. Avery
 Cheese screen W. H. Bartels
 Chuck H. A. Heupel
 Chuck, Automatic C. R. Chapman et al
 Chuck or tool holder for rock drilling machines W. C. Stephens
 Churn and butter worker, Combined G. I. Kaplan
 Chute H. Marcus
 Cigar cutter and advertizing device P. W. Smith
 Cigar holding device T. B. Erwin et al
 Cigar making machine G. H. Catt
 Circuit closer, Thermostatic A. D. Carwood
 Clevis A. G. Baker
 Clothes clamp or fastener I. T. Duxee
 Clutch Friction I. S. Barnett
 Coal burning furnace J. R. Archer
 Collar, Horse E. L. Sill
 Composition, printing, or the like J. A. Wetmore
 Concentrator C. O. Michaelsen
 Concrete block machine T. O. Eichelberger
 Concrete construction N. Schletkiewicz
 Confectionery machine feeding device G. Carlson
 Connecting mechanism H. E. Smith
 Conveyor C. K. Baldwin et al
 Cooler H. F. Coffin
 Coop Folding R. Yoakum
 Cotton press L. K. Stephens
 Curd cutter C. A. Schoenrock
 Cushion O. Mezenhart
 Dashboard, Supplementary R. H. Vauatta
 Davenport, Knockdown U. Rourke, Jr
 Deals, Machine for forming compound G. S. Mayhew
 Delinting machine W. S. Cannaday
 Desk, Recording A. Thieleke
 Discharge device M. Bailey
 Diseases, Apparatus for treating rheumatic or other C. Wolpers et al
 Diseases, Treating rheumatic or other C. Wolpers
 Disintegrating roller F. E. Davenport
 Display apparatus, Automatic A. W. Herbert et al
 Display bin H. G. Roth
 Display rack R. A. Ekstrand
 Dock cutter J. D. Abbott
 Door opening device, Electric F. Staehle
 Door operating mechanism W. R. & R. Pitt
 Door operating mechanism M. Cossey
 Door stop J. T. Roe
 Drafting instrument A. A. Allen
 Drawer support J. Rothwell
 Dressmakers, tailors, &c. Marking device for M. Rohrs
 Drill bit or cutter, Coal or rock mining G. H. Rittenbender
 Drill bit, Rock M. Hardsocg
 Drill feeding box, Divided G. T. White
 Drills, Feed nut for I. Wantling
 Drilling and nailing machine J. L. Perkins
 Drum Heating S. M. Abbott
 Dry kiln R. D. Curtis
 Dyeing apparatus, Silver C. M. Hanson
 Ear ring fastening N. Lieberfreund
 Eccentric J. W. H. Handley
 Electric circuit switch B. P. Rucker
 Electric light suspending device, Adjustable A. B. Wass et al
 Electric motor controller G. Baehr
 Electric power system 2 pats. J. E. Weaver
 Electric spark gap or interrupter E. L. Ovington
 Electrical switch thumb piece F. C. De Reamer
 Electrode M. Yasuda
 Electromagnet, Alternating current I. D. Ihder
 Emasculator O. C. Sheppard
 Engine cylinder construction, Gas F. K. De la Sault
 Engine transmitting device N. W. Abimoff
 Engines, Stone plug construction for refining S. R. Wagg
 Evaporator J. A. Rector
 Excavating scoop N. Wiesen
 Explosive motor D. E. Barnard
 Eyeglasses G. H. Chanel
 Fare registering and transfer ticket printing and issuing device W. D. C. Smith
 Fastener P. H. Lettre
 Fastener Interlocked C. D. Grandal
 Faucet, Self closing I. N. Baker
 Feed water heater C. Stickler
 Feeding oats to animals, Device for W. J. Washburn
 Feet, Electrical appliance for the E. Fernandez v Moreno
 Fence post A. A. Thompson
 Fertilizer distributor C. H. Barrows
 Fiber and manufacturing same, Waterproof viscose coated C. N. Waite
 Fibers, Manufacturing viscose coated C. N. Waite
 File, Bill P. H. Yawman
 File, Paper and card T. P. Gower
 Filter, Barrel A. E. Johnson
 Filter, Water C. V. Roberts

Filtering water C. V. Roberts
 Fire box lining C. M. Gentner
 Fire escape G. F. Wachtshauser
 Firearm, Magazine C. Freeman
 Firearms, Device for locking the barrels in B. Rebr
 Fireproof structure A. L. A. Himmelwright
 Fishing lines to floats or sinkers, Device for attaching A. R. Robertson
 Flexible tube and connection A. W. Nicholls
 Floor or wall wiper or mop H. O. Thomas
 Plug P. J. Malloy
 Fluid meter W. Ferris
 Fluid motor or meter W. H. Reynolds
 Folding box or basket G. M. Lane et al
 Folding table L. Heilbron
 Force feed distributor A. Armitage
 Fruit washer L. E. McCann
 Fuel, Burning J. B. Archer
 Funnel H. F. Gannon
 Furnace casing R. Holden
 Fuse or cut out, Electric L. B. Buchanan
 Game device 2 pats. O. Henrichsen
 Garment and book support W. F. Padden
 Garment fastener A. F. P. Stenzy
 Gas buoy, Automatic T. L. Wilson
 Gas burner H. S. Busey
 Gas burner R. Momand
 Gas burner I. F. McCarty
 Gas burner valve regulating device C. T. Fuller
 Gas machine J. H. Esker
 Gas tube stork neck W. S. Stapley
 Gas washing apparatus J. S. Oursler
 Gate E. Graeber
 Gate J. W. Reynolds
 Gate O. L. Williams
 Gate L. Hanson
 Gate N. & G. Soesbe
 Gate operating mechanism W. R. & R. Pitt
 Gear, Reversing W. I. McCarroll
 Glass in place, Strip for securing window W. T. Mills
 Glass manufacturing apparatus and process, Wire E. C. Schm ritz
 Glass manufacturing process and apparatus, Wire E. C. Schmertz
 Gold or other diamagnetic metals Separating L. T. Weiss
 Golf ball 2 pats. C. Davis
 Grain drying machine A. Johnson
 Grinding or polishing apparatus H. A. Weber
 Gun carriage recoil brake Wheeled, O. Lauber

(Continued in July Number.)

Canadian Patents

Canadian Patents may now be obtained by the inventors for any of the mechanical inventions named in the foregoing list, provided they are simple, at a cost of \$30 each. If complicated the cost will be a little more. For full instructions address Inventive Age Publishing Co., 918 F Street N. W., Washington, D. C.
 Foreign patents may also be obtained in certain other countries.

YOUR NAME, BUSINESS and ADDRESS on a neat Rubber Stamp with pad and ink mailed for 20c. I. A. Durham Co., Corry, Pa.

Magic Rheumatic Cure!

It absolutely does cure. It is not a cheap remedy but it is a cheap cure. Mark the distinction! There are a thousand remedies to one cure. This is A CURE. It costs \$2.00 a bottle, and is worth \$20.00 to any sufferer. Sold only by our authorized agents or direct of us. Send for circular. Agents wanted.

MAGIC CURE CO.

R. 313-315 Dearborn St. Chicago.

PATENTS

Send Your Business Direct to Washington .:. .:
 .:. .: Saves Time and Insures Better Service.

Caveats,
 Trade Marks,
 Copyrights
 and
 Designs.

My office is close to U. S. Patent Office. FREE report as to patentability made. Personal attention given—TWENTY-FOUR YEARS PRACTICE. Book "How to Obtain Patents," etc., sent free. Patents procured through E. G. Siggers receive special notice, without charge, in the—

INVENTIVE AGE

Illustrated Monthly—Seventeenth Year.
 Terms, \$1.00 a Year.

E. G. SIGGERS, 918 F STREET, N. W.,
 WASHINGTON, D. C.

INVEST

\$1 to \$100 a Month in a
 Business (27 Years Old)
 Paying 15 Per Cent.

Very unusual conditions make it possible for us to sell to old and new clients a limited number of shares (at par—\$10 a share) in a high-class business established in 1878.

It is the best known and most profitable business of its kind in the world.

You can buy one or more shares at \$10 a share. You may pay for your stock at the rate of \$1 a share per month.

The minute you get your certificate of stock your money will begin to earn the full 15 per cent. dividends. You will receive your dividend money, amounting to 5 per cent., every four months.

This is the most desirable kind of an investment because, in addition to absolute safety and big dividends, you may sell your stock at any time. We will sell it for you. We feel sure that in a year's time this stock will be selling at a premium of at least 50 per cent. That means that your money would earn, including the dividends, about 65 per cent. the first year. In another year we believe the dividends will be considerably larger, as the business is now being pushed faster than at any time before.

There is nothing speculative about this stock. It is stock in an industrial enterprise of the highest character. The company has

about 120,000 regular cash customers—many in every county in the United States and hundreds more throughout Canada. The products of the company are as staple as wheat, and the continued

prosperity of the company is almost as certain as the continued success of the United States government.

More than half of this block of treasury stock was subscribed for by local capitalists before our first advertisement appeared.

If you want to take advantage of the most remarkable and best investment opportunity offered to the public in many years, write at once (a postal will do) for our interesting free prospectus.

WELLS & CORBIN, Investment Brokers
 2132 Land Title Building, Philadelphia

FREE! Send us 2 cents to pay for postage and we will mail you a valuable copyrighted book, "How to Obtain Patent, Caveat, Trade-Mark and Copyright Protection, with Decisions in Leading Patent Cases" entirely free of charge. Address:

INVENTIVE AGE PUBLISHING COMPANY,
 (Dept. P.) WASHINGTON, D. C.



F. C. Owen, President of the most remarkable company of its kind in the world. Answer this advertisement and learn more about him.

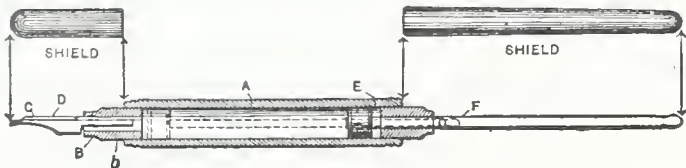
Look At Our Unprecedented Premium Offers !
To Old And New Subscribers Alike.

The "POST"

SELF-FILLING AND CLEANING FOUNTAIN PEN.

No Filler. No Soiled Fingers. No Lost Time. Simple and Perfect.

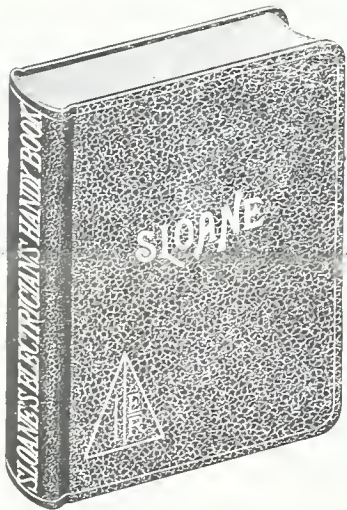
THIS IS ITS CONSTRUCTION.



Price \$2.00.

Including one year's subscription to

The INVENTIVE AGE AND PATENT INDEX



ELECTRICIAN'S HANDY BOOK

By T. O'CONOR SLOANE,
A.M., E.M., PH.D.

Handsomely Bound in Red Leather,
with Titles and Edges in Gold.
Pocket Book Style.

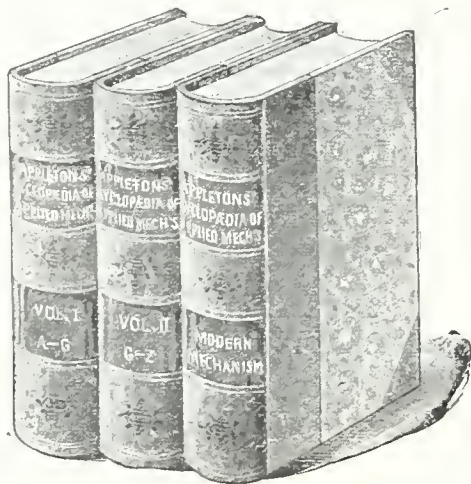
800 Pages. 500 Illustrations.
Price \$3 50.

Including one year's subscription to

The INVENTIVE AGE & PATENT INDEX.

Appleton's Cyclopedia of Applied Mechanics

Edited by PARK BENJAMIN, Ph.D., LL.B.
A Magnificent Set in Three Volumes Fully Illustrated.



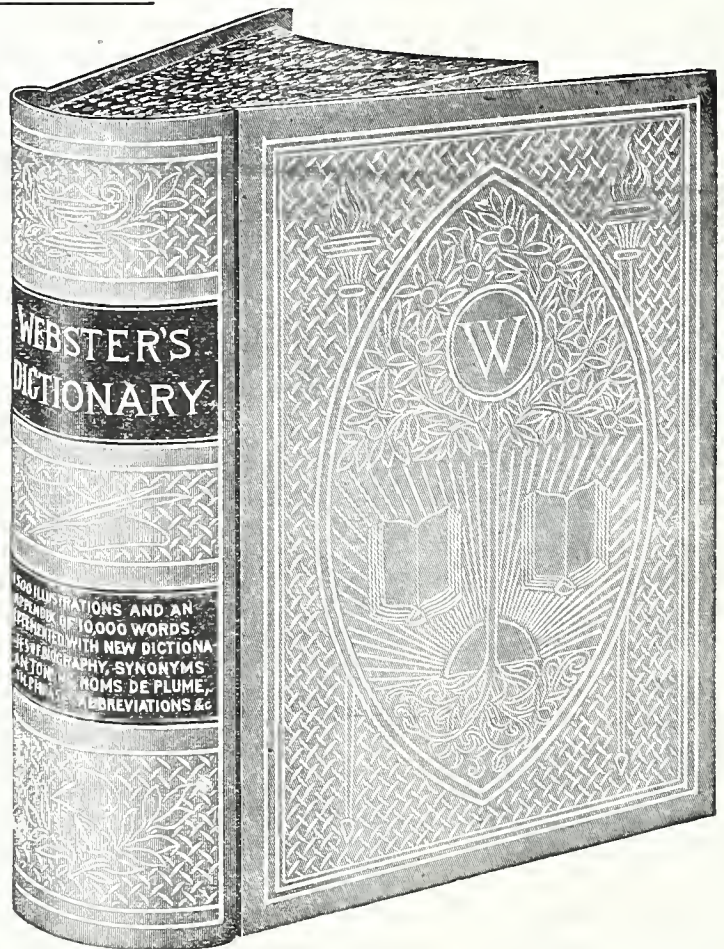
EACH VOLUME 10 x 7 x 2 INCHES WEIGHT 20 LBS.

SPECIAL PRICE \$12.

Including one year's subscription to The Inventive
Age & Patent Index.

SEND FOR OUR FREE CATALOGUE OF BOOKS FOR INVENTORS,
AND MECHANICS.

Address: THE INVENTIVE AGE PUBL'G CO., 918 F St., Washington, D. C.



1540 Pages: 1500 Illustrations: Full Library Sheep
Binding: Dennison's Patent Index; Size, 4 x 9 x 10
Inches; Weight eight pounds.

Price \$2.50

With one year's subscription to
The Inventive Age & Patent Index.

...A....

Complete Electrical Library

By PROF. T. O'CONOR SLOANE.

5 Volumes,

1300 Pages,

Over 450

Illustrations.



A \$7.00
Library for
\$6.00,

Including
one year's
subscription
to

The Inventive Age & Patent Index.



A JOURNAL
OF MANUFACTURING
INDUSTRY

THE Inventive Edge AND PATENT INDEX.

AND SCIENTIFIC PROGRESS.

SEVENTEENTH YEAR.
No. 7.

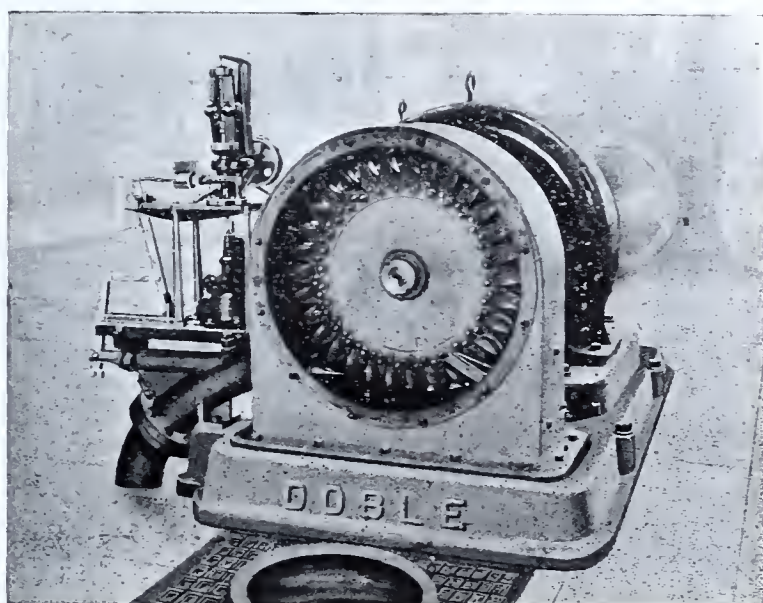
WASHINGTON, D. C.—JULY, 1905.

SINGLE COPIES 10 CENTS.
ONE DOLLAR A YEAR.

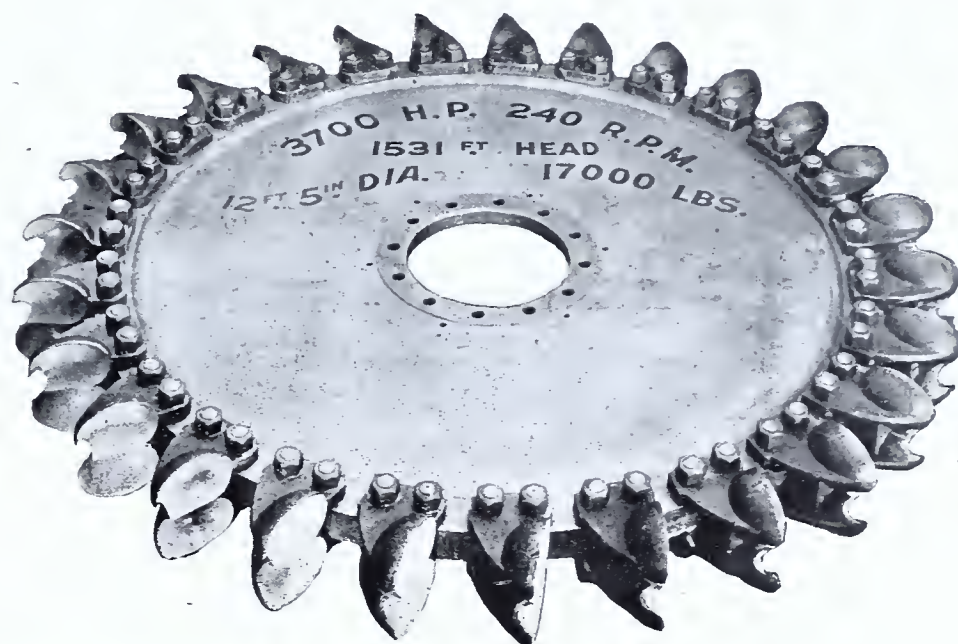
THE DOBLE HYDRAULIC MOTOR.

A NOVEL WATER WHEEL of an exceedingly high degree of efficiency is being manufactured by the Abner Doble Company, engineers, of San Francisco, Cal., and is particularly interesting, not only because of the records made, but because of the simplicity of structure. An operating exhibit of a comparatively small wheel was displayed at the Louisiana Purchase Exposition, where

a semicircular notch. This opening allows the solid jet to impinge on the dividing wedge of the bucket without being split in a horizontal plane, which would result in wastefully diverting part of the water in use, down into the tail-race. By this form, all eddy currents are avoided, and as the full force of the jet is spent in doing useful work, the efficiency of the



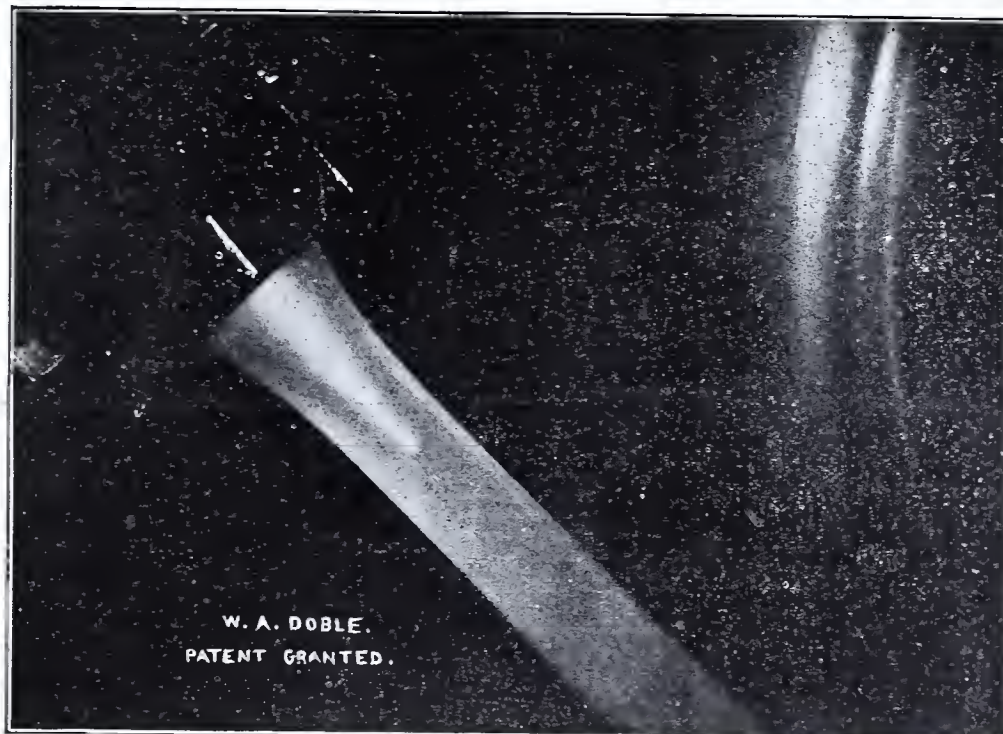
WHEEL EXHIBITED AT ST. LOUIS EXPOSITION.



WHEEL FOR DE SABIN POWER HOUSE.

it was awarded the grand prize. This wheel is shown in the accompanying illustration. In order to fully display the action of the water upon the buckets and the perfect form of jet, the housing of the wheel was constructed with plate glass sides. On account of the lack of a natural high head of water at St. Louis, a supply was obtained through the medium of a duplex triple-expansion mine pump, and the wheel was in actual service, being connected to an electric generator that supplied current to the Intramural Railway.

The wheels, regardless of size or power, are practically the same type, comprising body disks, to the rims of which are secured buckets of unique form. The buckets have inner spaced ears that embrace the body rim and are bolted thereto, the projecting portions of said buckets each having two ellipsoidal cups or pocket portions carefully ground smooth and polished, being separated by a rib wall or wedge that is sharpened to a knife edge. The superiority of the ellipsoidal bucket lies in the fact that because of the form, the jet of water enters without shock or disturbance and is discharged along natural lines over the entire bucket surface. The central portion of the front entering edge or lip of the bucket is cut away, in the form of



DOBLE NOZZLE IN ACTION.

bucket is very high. The absence of eddy currents, moreover, results in even wear and remarkable durability.

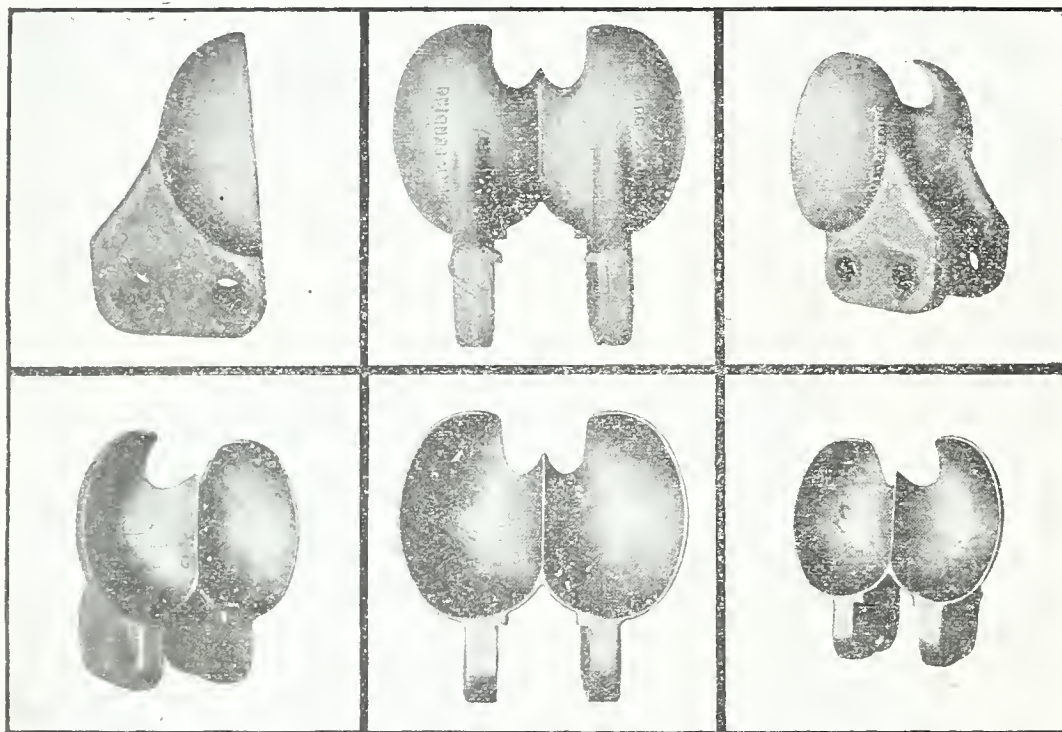
The nozzles are of the Doble patented needle regulating type, which may be operated by hand, or through the medium of an automatic governor. This type of nozzle permits close regulation of speed and maintains a high efficiency of the jet over a wide range. The regulating is done by moving an axial core piece, termed the needle, in a longitudinal direction within the nozzle, thus changing the annular area of the orifice and the quantity of water discharged. The nozzle produces a solid cylindrical jet of high efficiency. Investigation of the same at the Massachusetts Institute of Technology in Boston determined an efficiency as high as 99.3%. The action of one of these jets is illustrated herewith. This illustration shows a

jet issuing from a three inch nozzle at the Snoqualmie Falls power plant near Seattle, Washington. The photograph was taken by flashlight through an opening in the housing. The blur on the right shows the buckets and wheel rim running. When the photograph was taken, the jet was reduced to two and one-fourth inches diameter. It will be seen that a solid

cylindrical stream, free from spray or rotating action, is ejected from this nozzle.

The water wheel exhibited at the St. Louis Exposition was operated under a pressure substantially equal to a head of 700 feet. It developed a normal speed of 700 revolutions per minute and 170 horse-power. Other wheels have, however, been subjected to and have withstood much severer tests than that on exhibition. For instance, one of the Doble tangential water wheels installed at one of the power plants of the Edison Electric Company, of Los Angeles, California, was examined after one year's continuous running under a head of 1960 feet at 430 revolutions per minute. Notwithstanding the tremendous force that had been continuously exerted against the buckets, the same were found to be in perfect condition. This

The buckets are open hearth steel castings designed for a jet of water $4\frac{1}{2}$ inches in diameter. There has also been installed at the de Sabla power house an 8,000 horse-power hydro-electric unit, the water wheel portion of which is the most powerful single water wheel ever constructed. It is driven from a single six inch jet of water at 400 revolutions per minute, the jet issuing from the Doble needle regulating and deflecting nozzle at a velocity of approximately 20,000 feet per minute. The steel buckets of the water wheel are thus caused to travel at a speed of over 94 miles an hour. It is interesting to note that the entire floor space occupied by this machine is 20 feet by 20 feet, and that its extreme height above the floor is but 9 feet. The bearings are of the Doble ring oiling type built especially to withstand the unusually high speed of



DETAILS OF DOBLE ELLIPSOIDAL BUCKET.

is the highest head under which a hydraulic plant is now operated in the United States. The Abner Doble Company has installed three of these units in this plant, each having a capacity of 1300 horsepower. They are each equipped with the Doble needle regulating and deflecting nozzle and all are operating very successfully. Another example is the collection of six views of one Doble ellipsoidal bucket which was in service 586 twenty-four hour days under a head of 1300 feet. Particular attention is called to the fact that there are no irregular erosions on the hydraulic surface of the bucket, and that there is an entire absence of all wear on the back of the bucket, although the water carried much detritus.

We also present herewith a view of the revolving element or runner of a 3700 horse-power Doble tangential water wheel, installed at the de Sabla power house of the California Gas & Electric Corporation. This is one of two wheels, each of which, under 1531 feet head, drives a 2,000 KW generator. The wheel body is a nickel steel forging 12 feet 5 inches in diameter, finished all over and weighing 17,000 pounds. It is bolted to the flanged end of the nickel steel hollow forged generator shaft. The wheel runs at a speed of 240 revolutions per minute.

the unit. Electric power from the de Sabla plant has been delivered in Calaveras County via Colgate, Oakland, and Stockton, over the lines of the California Gas & Electric Corporation and the Standard Electric System, a distance of 345 miles from the power house, which is the record at present of long distance transmission.

New Decorative Effects.

Jesse T. Evans, of St. Louis, Mo., has invented a system of decorating, whereby decorative effects may be produced on the walls of buildings or other structures, the system comprising, essentially, transparent wall surfaces over which, or in the rear of which, water is caused to flow, and means whereby rays of colored light are projected into the transparent wall surfaces and water for the production of an illuminated decorative effect.

In carrying out the invention, a transparent column is employed within which is mounted a rotary sprayer. The sprayer is located near the top of the column, and throws water therefrom on to the inner surface of the column in a downward and outward direction. A lamp is arranged at the bottom of the column. Surrounding the lamp is an inverted cone shaped reflector, which reflector directs the rays from the light upwardly. Over the reflector is arranged a transparent top.

ELECTRICITY FOR HOUSEHOLD USE.

WE have grown accustomed to harnessing the lightning to our plows and reapers, and to seeing electricity do the work of faithful Dobbin; but its use for various household purposes is a relatively new development. Electric lights and fans, of course, are an old story. No modern house is now considered complete, unless it be fitted with electric wiring that can be applied either for incandescent lamps or for devices for setting the air in motion. Electric heating of houses, while not yet universal, is growing in popular favor. Among the many points of advantage over the furnace or steam system, it may be noted that each electric heater is independent of

all the others. There is no need to keep up a large fire in order to supply a small amount of heat to one or two rooms. This, of course, assumes that there is some large central power plant from which a supply may be drawn. The disadvantages of gas, used in the same way, lie in the danger involved in the use of a flame, and the contamination of the air by the products of combustion.

The electric range is coming into use, not only for hotels, club houses, ocean steamers, etc., but for private homes. Visitors to the St. Louis Exposition may remember the cooking apparatus employed by the caterers in the New York State building. This stove, invented by Mr. Maurice Bayno, is here illustrated.

A series of coils of wire over the oven serves to heat the top of the range, and at the same time, with another series under the oven, does the baking. Broiling may be done from the top, or in a special broiler in which the gridiron is placed in a receptacle arranged for the purpose, both sides of which are lined with resistance coils, which get red hot and cook each side of the steak at once, searing the surface instantly, so that all juices are retained. The device has the advantage of preparing dishes in a very short time. A sirloin steak, for instance, is thoroughly cooked in six minutes, a chicken is roasted in fourteen, a lobster is broiled in twelve, etc. There is, of course, no odor or fuel, and the red heat necessary for proper broiling is secured in a few seconds after the current is turned on.

A new substance for electric heating has been recently invented in Germany, however, which promises to take a prominent place in the field of applied science. It is called kryptol, and is a mixture of graphite, carbon and clay, so combined as to form a loose granular mass or powder of four grades or degrees of coarseness, which are severally best adapted to different heating operations.

Electric heat, says Consul General Mason of Berlin, in describing the invention, may be developed by two

general methods. The electric circuit may be broken, so that a voltaic arc is formed, and the charge in the furnace is thus heated directly, or the current may be transmitted through a conductor that offers enough resistance to generate heat, which is imparted to other substances by contact. This is the indirect electrical heating system, of which kryptol offers the latest and most interesting example.

The two main difficulties inherent in voltaic arc furnaces are: (1) Only very high temperatures are developed, which are difficult to modify or control, and (2) the arc consists largely of incandescent particles of (usually carbon) electrodes, which render the

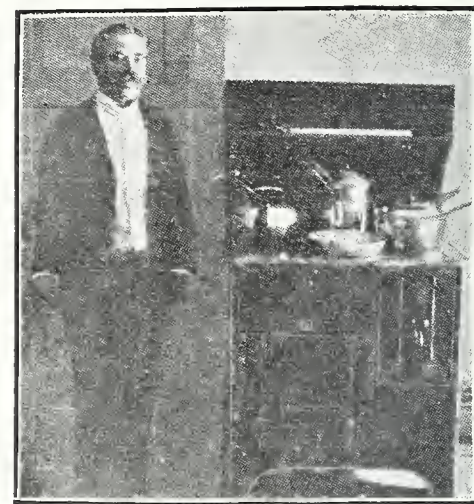


FIG. 1.—THE BAYNO ELECTRIC RANGE AND ITS INVENTOR.

flame so impure as to preclude its use for many important purposes. Both of these defects are remedied by kryptol, which develops heat of any desired intensity from a gentle warmth up to 3,000° Cel., and is clean and free from dust and other impurities.

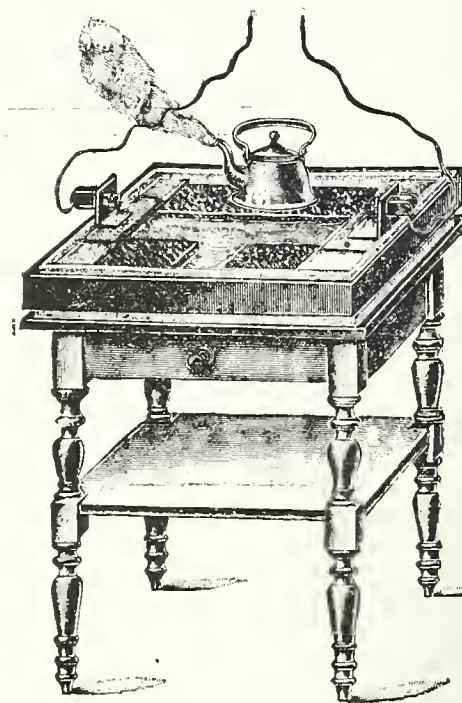


FIG. 2.—KRYPTOL COOKING STOVE.

Moreover, it avoids the use of platinum, nickel, and other metallic wires and foils that have been hitherto used in resistance furnaces, thereby securing important economy and avoiding the danger of short circuiting and other accidents, which is always more or less present when metallic spirals in connection with crucibles are used.

The property of kryptol, upon which

its efficiency depends, is the fact that it offers to an electric current the requisite degree of resistance to generate a high degree of heat without destruction to its own substance. The method of its operation is illustrated in figure 2. This is simply an earthenware plate inclosed at its edges in a wooden frame and bounded at two opposite sides by carbon electrodes which rest upon the plate and are connected by insulated wire conductors with a current supply, forming, when the break between the electrodes is closed, an electric current. Upon the plate, which is usually about 2 feet square, but may be of any convenient size, is loosely strewn the granulated kryptol to a depth of about an inch. This, when the kryptol is laid continuously across the plate, forms the electrical connection between the two electrodes and closes the circuit. When, however, the kryptol is brushed or scraped aside so that an open, uncovered space is formed through the layer across the plate, the circuit is broken and the apparatus remains, so to speak, dead. If now the kryptol is brushed into the open space, so as to form a connection between the two masses lying against the electrodes on either side, the circuit is at once restored, and the kryptol forming this thin connecting layer begins to sparkle and glow, becoming in a few moments incandescent and generating a heat that will raise cold water to boiling in three or four minutes.

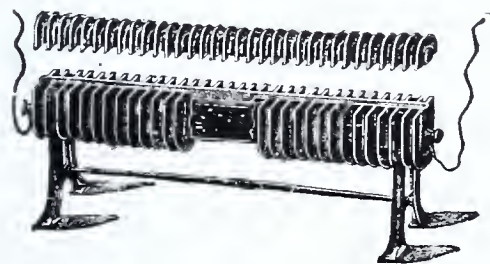


FIG. 3.—KRYPTOL RADIATOR.

A peculiarity is that the incandescent action takes place only at the places where the layer of kryptol on the plate is thinnest, and it is therefore easily possible to create heat just in the place where it is wanted and not elsewhere, for in this case the thick bed of granular material on other portions of the plate remains cool and impassive and may be touched or stirred by the naked hand with entire impunity. The finer the grains of kryptol the less active is the incandescence, and it is for this reason that the four different grades or numbers of the material are made, to be used as may be required in generating different temperatures.

The extreme tractability, by which the temperature can be absolutely regulated by increasing or diminishing the strength of the current or by altering the thickness of the kryptol layer, one or both, renders it applicable to a large variety of practical uses, among which some of the more important are as follows: For heating street cars, hallways, sleeping and other rooms, and laboratories where a continuous uniform warmth is essential. The apparatus (fig. 3) includes a simple cast-iron flanged radiator, the interior lining of which is glazed so as to insulate the kryptol mass with which it is filled. At each

end is an electrode, usually of gas carbon, connected with wires carrying a current of 4 to 5 amperes and about 120 volts, which is an ordinary voltage for lighting systems in this country. Such a heater—which can be put under a car seat or beneath the floor, where it is out of sight, can easily be managed by the conductor or motor-man, can generate and maintain indefinitely any desired temperature, and can be used without refilling for weeks together—would seem to solve, technically, at least, the problem of street-car heating in cold climates. The radiator is made with a close-fitting cover, for it is found that the kryptol endures unimpaired much longer in a closed chamber than in open air. A radiator in daily use requires filling with fresh kryptol once in about three months.

This process lends itself with great convenience to all the finer smelting operations in scientific and industrial metallurgy. These operations may be carried on by means of a small crucible furnace, which consists of an iron-shell with an enamel lining filled with coarse-grained kryptol, in the center of which is hung a movable graphite crucible, in which any temperature up to 2,000° Cel. (3,632° F.) may be generated. With a current of 15 amperes, nickel, the melting point of which is about 1,600° C., may be fused in about six minutes.

Some of the steel and cutlery manufacturers in Westphalia, Germany, are experimenting with kryptol with a view to its employment for tempering, annealing, and case hardening steel and iron bars, knives, scissors, and other implements. Such processes would become thereby automatic and independent of the skill of the workman.

As the ingredients of kryptol will withstand any temperature up to 3,000° Cel., its use for heating up to that limit is restricted only by the nature of the material of which the furnace and crucible are composed. Being itself a poor conductor of heat, it retains its warmth for a long time, and on account of its cleanliness and absolute tractability, offers a key to a new and convenient system of cooking and of warming dwellings and other buildings, whenever electric currents can be cheaply generated and supplied.

But the electric circuit can be employed in many other ways, to lessen labor in the modern home. The fatiguing operation of the sewing machine is dispensed with, and the work is done by a small electric motor about a foot high and six inches broad, which gets its power from the ordinary lighting wires, and transmits it to the sewing machine through a friction wheel bearing on the starting wheel of the machine. The speed can be very delicately regulated by means of a small lever, and the machine can be started or stopped as readily as by foot power. The only thing left for the operator is to guide the cloth under the needle, and even an invalid can work a sewing machine driven in this manner.

Flat irons heated by electricity represent another step in the progress toward household comfort and convenience. The iron so heated has the advantage of maintaining an even temperature which continues as long as the device is connected with the electric circuit. The iron heats up in a few minutes and is especially adapted for occupants of flats, in laundering or pressing small articles.

Electric chafing dishes have also commended themselves to the public. They are really small stoves, which can be regulated so as to give the desired intensity of heat. A traveler will find such a device particularly useful. It can be carried in the over-

coat pocket or in the hand satchel, and in a hotel room, on a train, on board a steamer, or wherever electricity is available, it can be set up and used for preparing coffee, tea, Welsh rarebit, etc.

Electric curling iron heaters are provided in up to date hotels and steamers. They are small and heat and work automatically. The slipping of the iron into the heating chamber turns the current on, and the withdrawing of the iron turns it off. They find popularity with the fair sex because they do away with the black smears of soot, that the heating of a curling iron in a flame of gas occasions.

Another application of this universal power is to a hot water bag, which might better be called a "hot wire" bag, for instead of being filled with hot water, it contains coils of fine, flexible wire which are heated on passing the current through them. The bag heats up in five minutes, and as is the case with the electric flat-



FIG. 4.—SEWING MACHINE RUN BY ELECTOR MOTOR.

iron, it possesses the advantages of yielding a uniform degree of heat as long as it is in use. This is certainly a long step in advance of the ordinary hot water bags, which have to be refilled every half hour, and even then a uniform heat is not maintained. It also has the advantage of being available in places where hot water cannot be obtained.

The electric circuit has also been found to be an effective agent in thawing out frozen water pipes. A relatively small amount of electric energy is necessary for this purpose, and water has been known to begin to circulate in the obstinate pipes within three minutes after the current is applied.

Among other electrical devices which are coming into practical employment are electric griddles, cake irons, toasters, cereal boilers and coffee urns. The operation of any of these contrivances involves an outlay of only about three quarters of a cent per hour, and besides their cheapness, their cleanliness, and their handiness, they have the further quality of being absolutely safe. Insurance companies recommend them, and are willing to lower their rates wherever such appliances are employed.

But the most remarkable application of electricity reported was in effect, an electric boot-jack. A young man, thoughtlessly rested his foot on a wire fence during a thunderstorm. Lightning struck the fence and removed the shoe from his foot. It does not appear that he was much damaged, although the condition of the shoe is not described. It cannot be denied that the lightning did its work and did it quickly, but this is an adaptation of electricity that few would care for.

Gold From Sea Water.

It has long been asserted that gold exists in a state of solution in the sea, and that in the many attempts to extract it, some has been collected and precipitated, but it is admitted that failure has attended every effort at extraction on a commercial basis. The announcement is now made, however, that a new process has received the sanction of no less a person than Sir William Ramsay, professor of chemistry, in University College, London, officer of the French Legion of Honor, corresponding member of the Institute of France, member of scientific and philosophical societies in nearly every civilized country, and the author of numerous scientific papers and treatises. The new process is patented, but no further description of it is given than that it "bears a certain resemblance to the treatment adopted in the mines of the Witwatersrand" (South Africa).

It is said that a syndicate, whose title and address are not given, has been quietly picking up favorable sites on the English and Irish coasts, and has now acquired rights over some 50 miles of foreshore. The securing of extensive foreshore rights is necessary because the sea water must be absolutely pure to obtain the best results from the new process. Therefore, factories and pumping stations must be established well out of reach of passing steamers, the bilge water from which would contaminate the surrounding sea and derange the process of extraction.

Some forty years ago active experiments began which showed that gold in minute quantities was dissolved in many rivers and streams, and later on a measurement of gold in sea water placed the amount at about a grain in each ton of the water. A grain of gold being worth about 4 cents, and the tons of water in the ocean being placed at 60,000,000,000,000, it staggers the mind to attempt to compute in dollars the prodigious total value of gold in the ocean. Should the new process do all that its friends sanguinely claim for it, gold would almost become a drug on the market; but it is considerably remarked that "it would obviously not serve the interests of the syndicate to secure gold in greater quantities than the market could absorb. Moreover, the firm of financiers mainly concerned in the developments, is far too deeply involved in high finance to engage in any operations which would have an unsettling effect upon the currency."

Electric Light Bulb.

A bulb for incandescent electric lamps is the invention of Robert R. Kintz, of Meriden, Conn., who has assigned the patent obtained thereon to the International Silver Co., of the same place.

In the use of incandescent electric lamps, it is desirable that the arm or bracket, in which the bulb is mounted, should represent the stem of a flower and with the bulb suggest the idea of a blossom. The object of the present invention is to further carry out this idea, and it consists in arranging within the bulb a series of glass stems representing the stamens of a flower.

CLEVER NEW PATENTS.

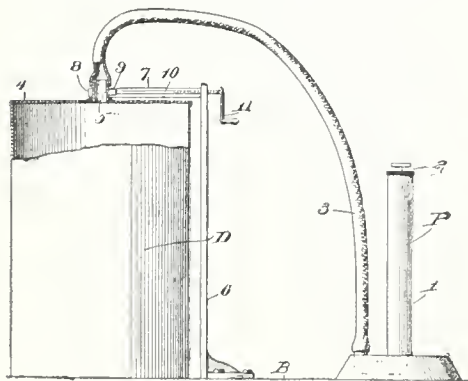
Air Exhausting Means.—Water Screen and Filter.—Harness.—Grinding Mill.

Air Exhausting Means.

Robert C. Davis, of Columbus, Ohio, has secured patent protection on a novel apparatus for exhausting air from fruit cans.

The principal object of the invention is to provide an improved apparatus by means of which a vacuum may be quickly produced in fruit cans or other vessels and maintained, while the vessel is hermetically sealed with solder or other sealing material. It is also the object to provide, in connection with the can or other receptacle, an improved form of closure with which an air exhausting apparatus may be connected, to effect the removal of air from the interior of the vessel, and which may be temporarily closed while the exhaust mechanism is connected therewith, so that a vacuum may be maintained in the vessel during the operation of sealing.

The apparatus comprises a base provided with an air exhaust pump P of ordinary construction, mounted on the base and having a flexible tube 3 extending to the fruit can and engaging with a collapsible metal tube 5 formed on the lid 4 of the can. The tube 5 is of sufficient stiffness to permit the attachment thereto of the flexible tube, but it is soft enough to be readily crushed by means of a clamp which is shown mounted on a standard 6 that is carried by the base. An arm projects laterally from the top of the standard and has a fixed lug 8 at one end. A jaw 9 is arranged for sliding movement in the arm and coacts with the lug, said jaw being operated by the crank 11 carried by the shaft 10.



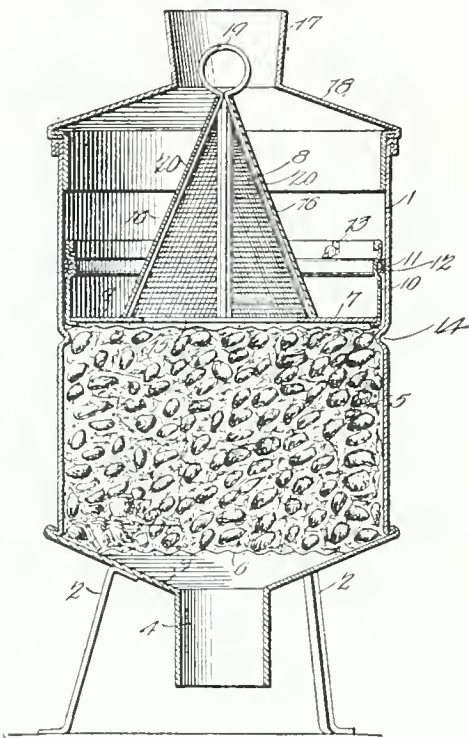
The vessel D having been placed in position adjacent to the standard 6, the tube 5 of the lid 4 is placed between the lug 8 and the sliding jaw 9. The flexible tube 3 is fitted over the end of the collapsible tube 5, and the air-pump P is set in operation to produce a vacuum within the vessel D. When the air within the vessel has been exhausted to the extent necessary, the threaded shaft 10 will be turned, by means of the crank 11, until the sliding jaw 9 compresses the tube 5 against the lug 8 and completely closes the opening in the tube. The tube 5 having been temporarily closed in the manner explained, the flexible tube 3 will be detached therefrom, and permanent closure of the tube 5 will be effected by placing a drop of solder in the open end of the tube. The clamp will then be removed from the

collapsed tube, and the contents of the vessel will be completely protected from the action of air.

Water Screen and Filter.

A filter particularly designed for household purposes and for purifying water, has been designed and patented by Stephen Stout, of Axtell, Kansas, who has assigned a one-half interest in his patent to Homer K. Harness, of the same place.

The principal object of the invention is to provide means for efficiently cleaning the filter and for generally improving the construction thereof.



The filter is provided with a casing having an inverted conical bottom, and a discharge pipe 4 leads therefrom. A grate 6 is located above the bottom and supports the filtering bed of granular material. A screen 7 is arranged above the granular material so as to confine it between the screen 7 and the grate 6.

Positioned above the filtering-bed is a separator 8, which is provided with a collecting-pan 9. The latter is provided with a circumferential flange 10, having an annular groove 11, within which is a packing 12. The edge of the flange may be notched, as at 13, to receive one end of the packing strip, which will then be wound around the flange and rest within the groove 11. The pan rests upon and is supported by an intermediate circumferential inwardly-disposed bead 14, formed in the receptacle, so that when the pan is forced down within the receptacle, the bead will constitute a seat therefor.

The screen 8 is preferably pyramidal in form and is shown as surrounding a central opening 15 in the bottom of the collecting-pan 9.

In practice, water is admitted into the filter through the inlet-pipe 17, so that it will strike the apex of the screen 8 and be separated or deflected to pass through the panels and through the filtering-bed into the discharge-pipe 4. The coarser particles of extraneous matter will pass over the screen and be deposited into the collecting-pan, while the finer particles will be carried by the water through the mesh of the screen and separated by the filtering-bed before the water finally passes out through the discharge-pipe 4.

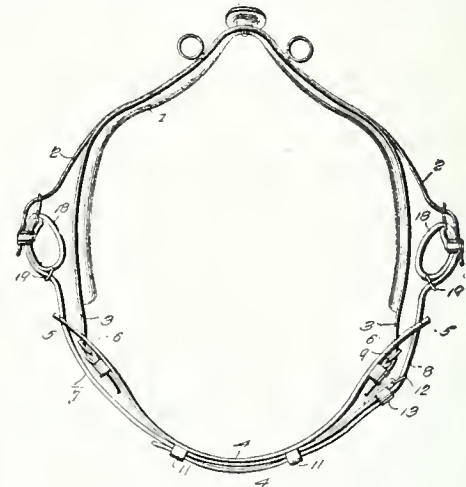
Harness.

A novel harness structure has been devised and patented by William Horning, of Johnstown, N. Y. This invention relates particularly to that class of harness, wherein the employment of a breeching-strap may be dispensed with, without interfering with the proper operation of the harness. The object of the invention is to provide a novel form of belly-band of such construction that when the saddle-billets and thill-tugs are associated therewith, all the parts will be held positively against separation and from liability of becoming broken under strain, resulting from an animal backing violently between the thills when the breeching-strap is dispensed with.

A further object is to cause the belly band itself to receive the principal strain from the saddle-billets and thill-tugs, in lieu of the buckles for holding these parts associated with the belly-band as heretofore. In the invention, a saddle is employed with which is associated a belly-band having its terminals provided with pairs of openings through the material of the belly-band, and buckles disposed adjacent thereto. Tugs are provided having means for attachment to the terminals of a breeching-strap and having billets passing through the outer pair of openings.

Saddle-billets pass through the inner pair of openings.

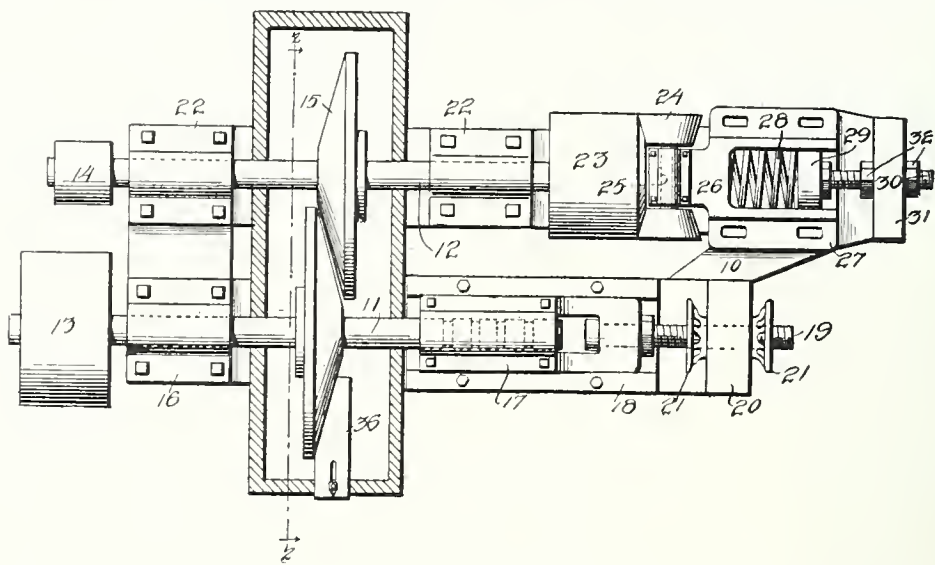
In the construction shown, the tug-billet 7 is passed through the opening 5 of the belly-band 4, thence through runners or keepers 11, and is provided at its free end with a buckle 12 to be engaged by the tug-billet 8, which also extends through the opening 5 on that side of the belly-band and has



its loose end likewise passed through the keepers 11 and through a keeper 13, carried by the tug-billet adjacent to the buckle 12. Under this arrangement, adjustment of one tug-billet effects adjustment of both, while where the buckles 9 are associated with the openings 5, one of the tug-billets may be adjusted to the exclusion of the other, this being due to the fact that the tug-billets separately engage the buckles 9.

Grinding Mill.

George A. Bell, of Port Huron, Michigan, has assigned to Herbert W. Smith, of the same place, a one-half interest in a patent which he has secured on a novel grinding machine.—The invention relates to improvements in grinding or crushing mills for the reduction of rocks, bones, and the like to smaller fragments or particles, or the reduction of grain and similar material to flour. The principal object is to provide an improved form of roller-mill in which the material acted upon is crushed or ground between the inclined faces of beveled disks driven at differential speeds in opposite directions, and in which provision is made for the separation of the grinding surface to permit the passage of bars of metal or the like substances which would tend to injure or break the disks. In the embodiment of the invention, a pair of disks 15 are carried by shafts 11, 12, these disks having beveled contact-faces.



Bearings are provided for the support of the opposite end portions of the shafts. Driving-pulleys 13, 14, of different diameters are carried by the shafts for imparting rotary movement thereto in opposite directions and at different speeds. A supporting device is employed on which one of the bearings of one shaft is adjustable, and a screw 19, is carried by this bearing. A perforated block receives the threaded end of the screw, and a pair of adjusting and jam nuts are carried by the threaded portion of the screw at points on opposite sides of the block. A cylindrical head 23 is carried by the second shaft. A slidable spring-box is provided, which spring-box carries a bearing, supporting a shaft. A pair of tapered antifriction rollers 24 are mounted on the shaft and engage the cylindrical head. An adjustable block 26 is employed having means for locking it in its adjusted position. Between the block and one end of the spring-box is disposed a compression-spring 28. In the event of the entrance of a metallic article between the disks, or the feeding of any material which the disks cannot reduce, the spring will yield and permit such material to pass freely between the disks without danger of breaking or otherwise injuring the grinding-surfaces.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

DAVIS CALYX DRILL CO. v. PLUNGER ELEVATOR CO.

(Circuit Court, S. D. New York. December 22, 1904.)

PATENTS—ANTICIPATION—ROCK DRILLING MACHINERY.

The Davis patents, Nos. 694,534 and 694,535, one for a rock-boring apparatus, and the other for the process of boring rock by similar apparatus, which consists of a hollow drill, which cuts around a core and is carried by a hollow drill rod, the essential feature of the inventions of the patents being a cup placed on the drill rod into which the drillings are forced by a jet of water up through the drill rod, are void for anticipation by the prior patent, No. 555,640, to the same patentee, which shows a similar cup.

KIRCHBERGER v. NATTRASS AND MENDES.

(Circuit Court, S. D. New York. December 10, 1904.)

PATENTS—INFRINGEMENT—ACETYLENE Gas BURNERS.

The Dolan patent, No. 589,342, for a process of burning acetylene gas, and for a burner tip adapted to carry out such process, held infringed on a motion for a preliminary injunction.

DEVLIN v. McLEOD.

(Circuit Court, W. D. New York. December 22, 1904.)

1. TRADE-MARKS—WORDS INDICATING QUALITY.

The words "Toothache Gum," used to designate a medicinal preparation for the relief of toothache, were suggestive of the ailment and its probable cure, and designated quality, rather than the origin or ownership of the article, and were therefore not subject to appropriation as a technical trade-mark.

2. SAME—UNFAIR COMPETITION—FRAUD.

Where, in a suit for unfair competition, it was apparent that confusion was likely to arise because of defendant's imitation of plaintiff's package, an intent to defraud would be presumed.

3. SAME—EVIDENCE.

In a suit to restrain defendant from alleged unfair competition in the sale of "Toothache Gum" in packages similar to complainant's package, evidence held to show such a similarity as to entitle complainant to an injunction.

4. SAME—LATCHES.

Where complainant, the original manufacturer of "Dent's Toothache Gum," had no knowledge of defendant's use in the United States or elsewhere of the words "Royal Toothache Gum," to designate his commodity until 1902, and plaintiff brought suit promptly thereafter to enjoin such use, and to restrain defendant from selling his commodity in packages similar to complainant's packages, complainant was not barred from relief by laches.

5. SAME—INJUNCTION—DAMAGES.

Where, in a suit for unlawful competition, the gist of the action was defendant's use of a label similar to that used by complainant, the fact that defendant's use thereof at the time suit was brought had been inconsiderable did not warrant the refusal of an injunction, though the use was insufficient to entitle complainant to an accounting.

DEVLIN v. PEEK et al.

(Circuit Court, S. D. New York. December 23, 1904.)

1. UNFAIR COMPETITION—IMITATING PACK- AGE.

Though the words "Toothache Gum" are descriptive, and therefore may not be appropriated as a technical trade-mark, defendant may, on the ground of unfair competition, be enjoined from using the words in connection with a style of type used by complainant, and on a label of similar color.

2. ACTIONS—PERSONS USING TRADE NAME.

Laws N. Y. 1900, p. 452, c. 216, § 363b, forbidding the carrying on of business under an assumed name, does not prevent institution of an action by one who has assumed a trade-name.

J. & P. COATS, Limited, v. JOHN COATES THREAD CO.

(Circuit Court, D. Minnesota, Third Division. January 28, 1905.)

1. UNFAIR COMPETITION—ADOPTION OF CORPORATE NAME.

While a person has the right to use his own name to designate articles which he manufactures and deals in, a corporation has not the right to use the name of one of its incorporators, where it is the name by which an article made and sold by an older dealer is usually called for and described, so as to cause deception of purchasers and injury to the older manufacturer.

2. SAME—FRAUDULENT INTENT.

Complainant, J. & P. Coats, Limited, a corporation, and its predecessors in business, have made and sold thread in the United States since about 1840, which has usually been called for and sold under the name of "Coats thread," and has by such name acquired a good reputation and a large sale; it being understood generally that thread so called was manufactured by complainant. Defendant corporation, the John Coates Thread Company, later commenced the manufacture and sale of thread, having taken its name from that of one of its incorporators, who had never been in the thread business previous to defendant's organization. It was shown that in many instances, purchasers calling for Coats thread were given by dealers thread made by defendant, which is sold at a lower price than complainant charged for its product, but which retailed for the same price. There was little or nothing on the spools to attract the attention of the ordinary purchaser to the difference. Held, that defendant's name was apparently adopted for the purpose of unfair competition, and that its use would be enjoined.

HEIDE v. WALLACE & CO.

(Circuit Court of Appeals, Third Circuit. March 8, 1905.)

UNFAIR COMPETITION—MATTERS NOT SUB- JECT TO MONOPOLY—NAME AND SHAPE OF CONFECTION.

A manufacturer of a confection composed chiefly of licorice, and formed in diamond shape, with his initials embossed thereon, and sold under the name of "licorice pastilles," has no exclusive right either in the name, which is purely descriptive, or in the lozenge shape, which is old in use and not indicative of origin; and another manufacturer of a similar article made in the same shape, but with a different letter embossed thereon, and sold under the same name, is not chargeable with unfair competition, where the boxes in which the confection is retailed, while of the same size and shape, are dissimilar in coloring and lettering, so that ordinary purchasers would not be deceived as to the origin of the goods.

NATIONAL TUBE CO. v. SPANG et al.

(Circuit Court of Appeals, Third Circuit. Feb. 1, 1905.)

PATENTS—INVENTION—MANUFACTURE OF TUBING.

The Patterson patent, No. 581,251, for the manufacture of tubing, covering the method of charging the plates into the turnace from the rear and withdrawing them from the front by means of tongs or other suitable device, which also draws them through the welding bell, is void for lack of patentable invention. The advantages of back charging in the manufacture of such pipe, as was practiced in the making of lap-weld pipe, were previously known, and it was practiced by at least one method. The method of the patent was merely a part of the steady evolution and development of the art in mechanical means, not involving invention.

CLEVELAND FOUNDRY CO. et al. v. KAUFFMAN et al.

(Circuit Court of Appeals, Third Circuit, February 21, 1905.)

1. PATENTS—INVENTION—RESOLVING DOUBT IN FAVOR OF PATENT.

Where the question of the validity of a patent is in doubt, the doubt should rather be resolved in favor of than against the patent.

2. SAME—OIL BURNERS.

The Jeavons patent, No. 702,560, for an oil burner, the important feature of which is the making of the stem of the needle valve which controls the oil supply to the burner of such size as to about fill the bore of its enveloping sleeve, so that it may be unthreaded from the valve body and used as a plunger in such sleeve to remove any

obstruction in the valve orifice, shows a modification of prior forms of construction, which adds a new and useful function and discloses invention. Also held infringed as to claims 1 to 6.

WESTINGHOUSE ELECTRIC & MFG. CO. v. JEFFERSON ELECTRIC LIGHT, HEAT & POWER CO.

(Circuit Court, W. D. Pennsylvania. February 24, 1905.)

1. RES ADJUDICATA—MUTUALITY OF ESTOP- PEL—REFUSAL TO DISCLOSE CONNEX- TION WITH SUIT.

A defendant cannot plead in bar to a suit for infringement a prior judgment, to which it was not nominally a party, on the ground that it in fact defended the action, where during its pendency, and until after the decision of the appellate court in favor of the defendant therein, it persistently refused to admit its connection therewith, and also during such time in another suit, filed a sworn answer denying such connection.

2. PATENTS—INJUNCTION AGAINST IN- FRINGEMENT—ELECTRIC MOTORS.

A preliminary injunction granted restraining infringement of the Tesla patents, Nos. 511,999 and 511,900, for a method of transmitting electric power and an electric motor, on prior adjudications sustaining such patents and admitted infringement by defendant.

BALL v. BEST.

(Circuit Court, N. D. Illinois. January 9, 1905.)

UNFAIR COMPETITION—SIMULATION OF TRADE-NAMES—MAIL-ORDER BUSINESS.

Complainant became the owner of the business and good will of an establishment in New York engaged in supplying clothing for infants and children under the name of "Best & Co., Lilliputian Bazaar," which advertised extensively, and had established a large mail-order business throughout the country. Defendant, the son of a former proprietor of the New York business, established a similar business in Chicago, using the name "A. S. Best & Co.," and placing on his sign the words "Lilliputian Outfitters," and "Formerly with Best & Co., New York." He also engaged in the mail-order business. Held, that it was the evident purpose of defendant to obtain the benefit of the advertising and standing of complainant's business, and that complainant was entitled to an injunction restraining defendant from using the name "Best & Co.," with or without prefixes, and also the name "Lilliputian" in connection therewith, in competition with his own business.

KAHN et al. v. STARRELLS.

(Circuit Court of Appeals, Third Circuit. February 13, 1905.)

PATENTS—VALIDITY AND INFRINGEMENT— FLAT KNIIT CAPS.

The Kahn patent, No. 669,011, claims 1 and 2, for a method of forming flat knit caps by expanding a tube of knitted fabric, having a band-forming selvage at one end, and setting it in the desired shape, instead of shaping the cap in the knitting as previously practiced, the result being to greatly increase the rapidity with which the caps can be made, and lessen the cost, disclosed patentable invention. Claim 3 for the product is void for lack of novelty. Claims 1 and 2 also held infringed.

GREENE et al. v. BUCKLEY et al.

SAME v. MANHATTAN REFRIGERAT- ING CO.

(Circuit Court of Appeals, Second Circuit. December 2, 1904.)

1. PATENTS—CONSTRUCTION OF CLAIMS— EFFECT OF PROCEEDINGS IN PATENT OFFICE.

Where a patentee acquiesces in a rejection of claims by the Patent Office, and amends the same so as to be more specific, such claims must be read and interpreted with reference to the rejected claims and to the prior state of the art, and cannot be so construed as to cover either what was rejected or disclosed by prior devices.

2. SAME—INFRINGEMENT—AUTOMATIC—LU- BRICATORS.

The Buckley patent, No. 590,297, for a force-feed lubricator, the object of the invention being to provide means whereby several machines may be automatically supplied from a single lubricator, and the quantity of oil fed to each regulated, covers merely a convenient combination of old devices, perform-

ing their old functions and accomplishing their old results in their old way, equipped with a specific construction of the connection between the cross-head or reciprocating member of the machine which operates the forcing pistons and the piston rods, whereby a slip movement is secured, and the length of piston stroke may be varied with reference to that of the cross-head, which remains constant; and, in view of the proceedings in the Patent Office and the prior art, the claims must be limited to such specific means of adjustment. As so construed, held not infringed.

NATIONAL CASKET CO. v. STOLTS.

(Circuit Court of Appeals, Second Circuit. January 12, 1905.)

1. PATENTS—SUIT FOR INFRINGEMENT— PROOF OF INFRINGEMENT.

In a suit for infringement of a patent against an individual defendant, who is described as being president and treasurer of a joint-stock association organized under the laws of New York, the bill is not sustained by proof of the sale of an infringing article by the association, where there is neither allegation nor proof that defendant is a stockholder therein, there being no statute requiring that the president or treasurer of such associations should be stockholders.

2. SAME—APPEAL—REMAND FOR REOPEN- ING OF CASE.

Where the record on appeal in a suit for infringement fails to show any connection between the defendant and the act of infringement proved, the court will not remand the case to permit the amendment of the pleadings and the introduction of new evidence to prove such connection, nor to substitute as defendant the party shown to have infringed.

CAYUTA WHEEL & FOUNDRY CO. v. KENNEDY VALVE MFG. CO.

(Circuit Court of Appeals, Second Circuit. January 20, 1905.)

PATENTS—INFRINGEMENT—HYDRANTS.

The Loetzer patent, 631,545, for a hydrant, held infringed as to claims 5, 12, and 14, and not infringed as to claim 2.

GLUCOSE SUGAR REFINING CO. v. ST. LOUIS SYRUP & PRESERVING CO.

et al.

(Circuit Court, E. D. Missouri, February 25, 1905.)

PATENTS—INFRINGEMENT BY CORPORATION —LIABILITY OF OFFICERS.

The president of a corporation not alleged to be insolvent cannot properly be joined with the corporation as defendant in a bid for an injunction and accounting for an alleged infringement of a patent by the corporation, merely because as such president he directs the business of the corporation.

VALVONA v. D'ADAMO.

(Circuit Court, E. D. Pennsylvania. February 24, 1905.)

1. PATENTS—INVENTION.

Where a patent discloses invention in some degree, the courts are not called upon to measure it by an exacting standard.

2. SAME—ANTICIPATION—FOREIGN PATENTS.

A United States patent will not be defeated by a prior foreign patent, unless it describes or shows the patented invention in such clear and exact terms as to enable any person skilled in the art to practice it without the necessity of experimenting.

3. MOLDS FOR BISCUIT CUPS.

The Valvona patent, No. 701,776, for a mold and oven for making biscuit cups to be used for holding ice cream, was not anticipated, and discloses invention; also held infringed.

JENKINS et al. v. MAHONEY.

(Circuit Court, W. D. Pennsylvania. November 9, 1904.)

PATENTS—INFRINGEMENT—MULTIPLYING CAMERA.

The Jenkins patent, No. 620,036, for a multiplying camera, held valid, and infringed by a camera having the same construction, except that instead of the "cellular box" of the patented device, having separate cells, in front of each of which a lens is moved successively on a slide having both a horizontal and vertical movement, it employs a single cell, which is fastened to the slide, and moves with the lens; such construction being the equivalent of that of the patent.

MECHANICAL INVENTIONS AND DESIGNS

Patents for which have been procured
through the Patent Soliciting Office
of E. G. Siggers, Patent Lawyer,
Washington, D. C.

Thomas Cotton, Halstead, Miss. Lap Ring or Link.—The invention is primarily intended for use in connecting whiffletrees to plow stocks, but is capable of employment for various other purposes. The object is to provide a link or ring which may be readily opened, is securely locked when in closed position, and is so constructed that the part to which draft strains are transmitted are not weakened by openings for the passage of rivets or pivotal connections. The link or ring comprises sections, each having hooks at its ends that project in the same direction and overlap the hooks of the other section. The sections are provided with inwardly extending centrally disposed overlapping tongues, one of which has a slot. A pivot connects the tongues and passes through the slot, a coil spring surrounding the pivot and bearing upon the adjacent tongue. A rib is located upon and across the inner end of one of the tongues, and another rib, carried by the free end of the other tongue, detachably interlocks therewith, thus holding the parts in proper relation, the spring permitting their release and separation.

William Rhode and Wm. Hastings, Sandusky, Ohio, inventors; William F. Bolly and Edward H. Zurhorst, same place, assignees. Hanger for Doors, and the like.—In sliding doors, particularly those employed upon cars or the like, difficulty is often experienced in removing the doors for repairs. In this invention, the aim is to provide an improved hanger, the different elements of which are so constructed that the hanger and door supported thereby may be readily removed from the track, without the necessity of taking down said track or detaching a door from the end thereof. Each hanger comprises a body having an ear spaced from the inner face thereof, the body being provided with an opening and a projection located contiguous thereto. A supporting roller is located between the ear and body and a journal pin passes through the opening in the body, through the roller and engages the ear. This journal pin is held in place by a key passing through the projection of the body, and front end of the pin to hold the pin against longitudinal displacement. The key thus being located in exposed positions, can be readily detached if desired, thus permitting the removal of the journal pin and roller to permit the detachment of the door from the track.

Addison F. Hoffman, Pittsburg, Pa. Building Block.—This is an important improvement in that class of building blocks made up of concrete or similar composite material. The block consists of sections made up of cement, sand and gravel, the outer section having a facing coat of cement, sand and coloring material, having incorporated therein interposed silica and chloride to make the structure waterproof. This facing coat is provided with intersecting grooves to represent a plurality of bricks, the grooves being filled with cement to illustrate the lines of mortar. A novel joint is formed between the ends of the block, and a wall constructed of these blocks is not only strong and durable, but has all the appearance of being formed of brick.

Henry Frizell, Grass Range, Montana. Shepherds' Crook.—This patent covers an ingenious device adapted to be readily engaged with the leg

of an animal, and capable of effectually preventing the same from kicking loose. It is designed especially for catching sheep, and is adapted to permit the same to be readily released without throwing the animal down and holding it in such position while the device is being removed. The shepherds' crook comprises a shank provided at its outer end with a concave seat, and having a resilient hook extending from one side of the seat and forming a curved loop around the end of the shank. The bill of the hook extends along one side of the shank, and forms a curved guard for guiding the leg of an animal into the loop.

Linville V. Long, Bowerston, Ohio, inventor; James A. McKean, same place, assignee, part interest. Hose Coupling.—The device of this patent is characterized by a peculiar arrangement, by which the parts will always be in proper position to enable a hose to be readily coupled without turning or twisting it. The hose coupling effects a great saving in time, both in coupling and uncoupling hose sections. The coupling is composed of two sections, one of the sections being provided with a shoulder, and the other section having an annular enlargement. A collar is arranged on the latter section and is provided with arms, which are interlocked with the enlargement. An operating lever is fulcrumed on the collar, and is connected with a yoke for engaging the shoulder. The collar is adapted to rotate freely to enable any adjustment of the locking mechanism to be effected without turning or twisting the hose. The lever and the yoke are adapted to exert a direct longitudinal pull on the sections to prevent any binding or frictional contact of the sections. By means of the improved construction, a steam, water or air-tight joint may be quickly made.

John Reel, French Camp, Miss., inventor; T. E. Barron, Sturgis, Miss., and J. W. Barron, Aberdeen, Miss., assignees. Plow.—The object of the present invention is to improve the means for connecting the handle with the beam. It is designed for plows, one-horse cultivators and the like, and enables the handles to be readily raised and lowered to adjust them to suit a man or boy, whereby a plow or similar implement may be handled more advantageously. The handles are pivotally connected at their lower ends to the beam, which is provided in rear of the pivotal connection of the handles with a cuff. The cuff receives an inclined adjustable connecting device or brace, composed of upper and lower bars provided at their outer ends with eyes, arranged respectively in the cuff and on the rung, which connects the handles. The inner ends of the upper and lower bars are overlapped and have a slot and bolt connection. The fastening device for securing the cuff to the beam also serves as the means for attaching a standard brace to the beam.

James R. McWane, Birmingham, Ala. Molding and Casting Apparatus.—In the INVENTIVE AGE for February, 1901, there was an illustrated article on the Lynchburg Plow Works, of Lynchburg, Va., and favorable comment was made on the plows invented and patented by Mr. James R. McWane. Also in the INVENTIVE AGE for December, 1901, the subject matter of three patents granted to Mr. McWane was described, all of these patents relating to molding and casting apparatus, particularly intended for the manufacture of plows, though not necessarily limited thereto. An improvement on this apparatus was later patented, the same consisting of a plurality of mold-receiving benches forming an alley therebetween, in which is movably mounted a table carrying the molding apparatus. The benches are substantially of the

character disclosed in the original patents, but the molding table is considerably different, being supported on wheels that run upon tracks carried by the inner edges of the benches. Mounted on the molding table is novel molding apparatus, whereby a plurality of molds may be simultaneously made. Carried with the table and supported above the same is transferring mechanism, by means of which the molds can be readily changed from the table to the benches and positioned thereupon for the casting operation.

Elias Taylor, Winchester, Illinois. Leaf Turner.—The object is to provide novel means whereby sheets or leaves of music can be readily turned without causing any serious interference with the performance upon the musical instrument. A plurality of swinging spring-operated arms are employed which are successively passed behind the sheets or leaves, and are held against movement by a star wheel. The star wheel, in turn, is normally prevented from rotating by a detent having an exposed handle that is located contiguous to the keyboard. When it is desired to turn the page, the operator has only to touch the handle, whereupon the outermost arm will be released and the leaf thereby swung.

Harry A. Ruggles, Chicago, Ill., inventor; Florence M. Jones and Salmon W. Dalberg, assignees, Milwaukee, Wis. Wrench.—This invention relates to that class of wrenches wherein one of the jaws swings and is movable toward and from the other. The wrench consists of a stock having a longitudinally disposed slot in which a threaded shank is located. A stirrup embraces the stock and is slidable thereon, being provided with openings on its opposite faces that align with the slot. A nut is threaded on the shank and engages in the openings of the stirrup, and a jaw, pivoted to and between the ends of the stirrup, co-operates with another jaw carried by the stock.

Richard A. Maples, Clinton, Iowa. Reversing Gear.—It is the aim of the present invention to improve the construction, and increase the efficiency of reversing gear for oil, gasoline and other engines, and to provide a device of great strength and durability, designed more especially for use on launches and various other boats, and adapted to permit a boat to be readily started, stopped and reversed without stopping the engine. The reversing gear embodies an exteriorly arranged clutch member having inner and outer engaging faces and connected with a drive shaft, and an interiorly arranged clutch member mounted on a shaft to be driven and arranged to engage the inner face of the exterior clutch member, in combination with friction gearing connected with the shaft to be driven and having an intermediate gear arranged to engage the outer face of the exterior clutch member.

Robert G. Lake, Corona, N. Y. Window Shade Sign.—This patent covers one of the most unique ideas in advertising, and is designed primarily for use in show windows, and at store doors and similar places, where the light for illuminating the interior of a store may be utilized for illuminating the sign at night, in order to obviate the necessity of employing special gas-jets or electric lights for the sign. The sign is effective both in daylight and at night, and will enable bold, attractive and highly ornamental advertising and other matter to be displayed. The sign comprises a flexible body portion of substantially opaque material provided with a sign character aperture, and a piece of translucent or transparent material of the same form as the aperture. The translucent material covers the aperture, and extends beyond the edges of

the same to form a shade border for concealing its attached edges.

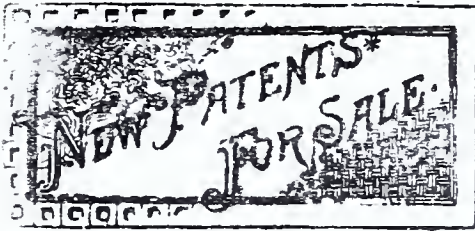
Wilbert T. Gaston, Hackberry, Okla. Ter. Vehicle Axle.—This patent provides a dust-proof bearing, and enables the bearing surface of the axle, when worn, to be readily renewed with little expense and great convenience. The axle is provided with a reduced outer portion having inner and outer screw threads, which are engaged by inner and outer interior threads of a removable thimble or skein, which forms the bearing of the axle, and takes the place of the ordinary spindle. The outer threaded portion of the axle extends beyond the thimble or skein, and receives the axle nut. The inner end of the thimble is provided with a squared portion of the same diameter as the body portion of the axle. The two parts are interlocked by a sleeve, which embraces the squared portion of the thimble or skein and the body portion of the axle. The thimble or skein, when worn, may be replaced by a new one at a very low cost, and it obviates the inconvenience of welding a new spindle to the axle.

John J. Reed, La Belle, Mo. Syrup for Table Use.—This invention provides for table use a high grade syrup greatly superior to the ordinary table syrups on the market at the present time, and adapted to take the place of strained honey. The syrup has a honey flavor, and is sweet, delicious and palatable, and can be manufactured and sold much cheaper than strained honey. The syrup consists of granulated sugar, brown sugar, water, pure bee honey, (strained) cream of tartar and rose water. Sugar constitutes the main body of the syrup, and the granulated and brown sugars are used to secure the desired flavor and color. Alum may be substituted for cream of tartar, as either ingredient will prevent granulation. Glucose may also be used, as it both prevents granulation and cheapens the product.

Murray R. Botkin, Denver, Colo. Three patents. Sewing Awl and Display Rack. One-half interest in the sewing awl has been purchased by James W. Dowd, of Kokomo, Colo.—The sewing awl of the first patent is provided with means for carrying its own thread, which is arranged in close proximity to the needle, and the latter may be removed without interfering with the means for holding the thread. A pair of arms projects from one end of the needle, and are spaced apart to receive a spool or bobbin, which is detachably mounted between the arms. The outer portions of the arms are formed into a pair of needle clamping jaws, and are exteriorly threaded to receive a nut, whereby a needle is firmly and detachably clamped between the jaws.

The second patent relates to an improvement on the first one and consists of a handle having at one end a yoke. In this yoke is journaled a spool mounted on a journal in the form of a split key. At the outer end, the yoke is provided with a pair of co-acting jaws arranged to be clamped by a suitable nut upon a needle. A passageway for the thread is formed directly through the yoke, and between the jaws, so that the thread upon the spool can be passed directly in the inner end and longitudinally along the needle, the latter being recessed to receive the same.

The third patent discloses an ornamental and attractive display rack designed to be used in grocery stores for exhibiting crackers, cakes, bread-stuffs and the like. The rack rises from a rectangular base, the opposite faces of which are substantially parallel. The body of the rack is tapered, and provided at opposite sides with inclined shelves, and it is surmounted by an ornamental crown.



Advertisements inserted in this column for 15 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—Patented May 16, 1905, double hook at both ends, made in different sizes, used anywhere that a snap or hook can be used, right end up any way it is hooked. Address, Lewis Noble, Granite City, Ill. sep

FOR SALE—Patent No. 758,800 Improved Map King or Open Line. Will sell cheap outright, or lease on royalty. Need money. Am looking for capital to patent several inventions. Will assign part on each patent. Address, Frank Wenke, Fort Wingate, New Mexico. sep

FOR SALE—Patent No. 789,899. Awaiting. The greatest invention in the way of window shades or awnings. Apply to J. A. Charlton or J. F. Bigony, Hinton, W. Va. sep

FOR SALE or on royalty—U. S. Patent No. 783,417, dated April 25, 1905. Improvement in Furnace, viz. a furnace lining. Address, Miller & Marshall Mfg Co., No 210 N. Walnut, Centralia, Ill. sep

FOR SALE—Three patents cheap. Compensating Gearing, No 787,015; Steam Engine No. 725,943; Steam Boiler No 720,899. For automobile use. Address, E. C. Doonitie, 212 S. Main St. Wallingford, Conn. sep

FOR SALE or trade—U. S. Patent No. 762,490. Apparatus for erecting telegraph and telephone poles and wires. Will sell or trade off in state rights, for well-located real estate, either to manufacturers or private parties. Address, William Parker, Box 665 Tecumseh, Neb sep

FOR SALE—Patent on Nut Lock, most simple, cheap and effective, made of steel wire; does not change bolt or nut. Fits any bolt. Sell cheap or on royalty. Write for free samples and particulars. Address, W. B. McCullough, R. D. No 2 Monmouth, Iowa. sep

FOR SALE—Patent No. 784,461, dated March 7, 1905. Automatic fire extinguisher. One of the best of its kind. Safe, simple, cheap, and durable. Will sell outright, or by states, or lease on royalty, or trade in part for land. Address, J. D. Williams, Box 814, Plymouth, Ind. aug

FOR SALE—Canadian Patent No. 90,678. Cultivator for hilling sweet potatoes and other crops. Best in the world. Will sell outright for cash. Address, William H. Page, Swedesboro, N. J. aug

FOR SALE—U. S. Patent No. 780,650. Non-refillable Bottle. Absolutely impossible to tamper with contents after being sealed. Simple of construction, effective, and practicable. Issued Jan. 24, 1905. Look it up and address, Wm. Gardner, Carberry, Manitoba, Canada. aug

FOR SALE—Patent No. 777,493, dated December 20, 1904. Music Chair. The easiest device so far invented. Anyone can learn to play in one day. It can be sold to nearly all piano and organ owners. The music chairs sell \$1. per set; cost of manufacture per set two cents. Address, F. C. Kruschke, Berlin, Wis. aug

FOR SALE—United States, English, and German Patent just issued on a Combination Tool. Will become a standard tool. Splendid hardware specialty. Address, W. L. Cooper, Speiguer, Ala. aug

FOR SALE—Patent No. 783,413. Patent Cooling Apparatus, for cooling the walls of blast furnaces; also preserving the brick. Adapted to any vertical or inclined wall to protect the same against fire from adjoining buildings. The invention has been fully tested for two years. Will sell patent, or lease on royalty. Address, L. O. Brigatoni, Green Winton, Va. aug

FOR lease on royalty—Patent No. 786,253. A clay digging agitator for hydraulic dredges. Increases their capacity forty to sixty per cent. Will cut up the stiffest kind of clay. Address, George Meager No. 519 Ashtland Block, Chicago, Ill.; or J. G. Gillespie, Oak Harbor, Ohio. aug

FOR SALE—Patents No. 784,142 and 731,932. Patented March 7, 1905, and March 3, 1905. Automatic Weighing Apparatus. Can be attached to any grain spout or elevator. Will handle all granulated substances, and is accurate. Will sell state rights or U. S. outright, terms reasonable. Address, Mr. A. L. Backlund, Marietta, Minn. aug

FOR SALE—Design Patent No. 37,343—14 years—issued February 14, 1905. Ornamental Christmas tree, parlor vine and flower support or stand. Useful in the home, also for decorating churches and halls. Send for booklet. Address, Miss C. J. Taylor, Carbon, Indiana. jy

FOR SALE—U. S. Patent No. 748,742, and Canadian patent No. 92,124. Hose Coupling Will give to some reliable manufacturer on a royalty basis, or will sell cheap for cash. The quickest reliable coupling made. Can be coupled and uncoupled one hundred and fifty to two hundred times per minute. Address, J. Jeffery, No. 33 Barbour Place, New Castle, Pa. jy

FOR SALE or Exchange—Ten useful household articles, made from one 12-foot common ladder, viz.: A 4-foot step ladder, a 6-foot step ladder; an 8-foot common ladder; a 10-foot common ladder; a 12-foot common ladder; also a wash tub bench, a clothes wringer and tub bench, a clothes rack, an ironing board and a very handy chair. Agents wanted. Write for terms and free circular, F. McNaughton, Raymond, Ill. jy

Attention Inventors!

LISTS OF MANUFACTURERS FURNISHED.

We have increased our facilities for furnishing lists of manufacturers, and now cover every line of industry.

Our charge for each list is one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad will be inserted three times.

THE INVENTIVE AGE PUBLISHING CO., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.....

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

FOR SALE—Patent No. 776,007, dated Nov. 29, 1904. Bottle. All cash, or cash and royalty. Correspondence solicited. Address, Hilaire Vincent, 357 Amherst Street, Manchester, N. H.

FOR SALE—Patents No. 774,693, Steering Apparatus for Ships, issued Nov. 8, 1904; and No. 755,928, Heat Regulator, March 29, 1904. Address, John Peterson, Lake George, N. Y. dec 05

FOR SALE or on royalty—U. S. Patent No. 732,746, Canadian patent No. 48,697 Shingle Guide. Great labor saver for carpenters. Handy, and cheaply manufactured. Does away with driving nails in roof. Write, Andrew Sivertson, Auburn, Me. Wis. jy

WANTED.

WANTED—Patented and unpatented inventions bought, sold and improved. Address, Frank Ravina, Jr., Winnetka, Ill. sep

WANTED—A manufacturer in iron and steel to manufacture adjustable wheelchairs. Just the thing wanted for ages. Anyone can tighten them with a wrench without removing the wheel from the vehicle. Address, R. S. Cutter, Ochiltree, Texas. jy

WANTED—To buy patents, rights, or ideas of some new and useful article. Preferably one which can be manufactured and sold in connection with the beating and mill supply business. Correspondence solicited. Address, F. Ranville Company, Grand Rapids, Mich.

INVENTORS OF SHEET METAL, WIRE AND PLASTIC MATERIAL GOODS.

The Wiet-Goethe Company of Sacramento, California, owns the best tool room and plant on the Pacific Coast, for the manufacture of goods made from sheet metal, wire and plastic materials. It makes a specialty of the manufacture of patented articles only, and will be pleased to receive from inventors, particulars of articles of this character. The plant is fully equipped in every particular, and offers to the inventors an unusually good proposition. This will largely apply to men of small capital, who in this way, can command the services of a plant, which could not be duplicated for thousands of dollars. Address, Wiet-Goethe Company, Sacramento, California.

WANTED.

To buy an up-to-date Rotary Washing Machine Gearing that is covered by a strong patent. Address, S. B. P., Care "Inventive Age," Washington, D. C.

Drawings for Inventors.

If you want copies of the drawings of your patent, we can procure them at these prices:

12 copies, each sheet full size (8x13)	\$ 2.50
25 " " " " " "	3.50
50 " " " " " "	4.50
100 " " " " " "	7.00
500 " " " " " "	13.00
1000 " " " " " "	17.00

12 copies, each sheet reduced 1/2 (8 1/2 x 5 1/4)	\$1.25
25 " " " " " "	2.00
50 " " " " " "	3.00
100 " " " " " "	4.00
500 " " " " " "	7.50
1000 " " " " " "	9.00

These copies will be made by the photo-lithographic process, by the firm which formerly attended to the Patent Office work, and will be equally as good as the drawings accompanying your letters patent. Five hundred copies of your patent would cost you at least \$25. We can furnish 500 copies of the drawings, if contained on one sheet, for \$13 full size, or \$7.50, if reduced one-third, the same reduction as your letters patent drawings. Your valued orders solicited.

The Inventive Age Publishing Company, WASHINGTON, D. C.

YOUR NAME, BUSINESS and ADDRESS on a neat Rubber Stamp with pad and ink mailed for 20c. I. A. Durham Co., Corry, Pa.

Magic Rheumatic Cure!

It absolutely does cure. It is not a cheap remedy but it is a cheap cure. Mark the distinction! There are a thousand remedies to one cure. This is A CURE. It costs \$2.00 a bottle, and is worth \$20.00 to any sufferer. Sold only by our authorized agents or direct of us. Send for circular. Agents wanted.

MAGIC CURE CO.

R. 313-315 Dearborn St.

Chicago

A NEW BOOK FOR INVENTORS.

Patents and How to Make

Money out of Them.

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trademarks and copyrights. It also tells accurately how and what to invent, how to sell inventions, place them on the market, interest capital in them, and to successfully promote a stock company. It also contains an index of forms worth double the price of the book, to any one interested.

ELEGANTLY CLOTH BOUND.

GOLD STAMPED. \$1. Postpaid.

Sent with one subscription to AGE for \$1.75.

Or will sell separately.

Address—The Inventive Age Pub. Co.,

918 F St., N. W. WASHINGTON, D. C.

Thousands

of inventions in the field of Railway and Engineering are being patented every year.

The Railway and Engineering Review

carries more advertisements of patent attorneys than any other railway paper in North America.

For rates, address—

The Railway and Engineering Review, 1305 Manhattan Building, Chicago.

Bee-Keepers

Should all subscribe to

THE AMERICAN BEE-KEEPER,

(Established 14 years.)

50 cents per year.)

The best magazine for beginners. We will send it Six Months on Trial for 20 cents. Sample copy free.

Address:

The American Bee-Keeper, Falconer, N. Y.

It is published by the

W. T. FALCONER, MFG. CO.

One of the oldest and largest makers of bee-keepers' supplies. Catalogue free.



The Inventive Age

AND PATENT INDEX.

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 918 F Street, N. W.,
WASHINGTON, D. C.

The INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND A HALF.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

The INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 15 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,
WASHINGTON, D. C.

Entered at the Post-office as second class matter.

WASHINGTON, JULY, 1905.

THE PATENT OFFICE.

The work of the Patent Office continues to show a slight increase in the total number of applications awaiting action. According to the official report of the condition of work at the close of business July 11, 1905, there were 16,754 applications awaiting action, including both new and amended applications.

At present, there are now thirty-nine divisions in the Patent Office, a new division having been created which has charge of trademarks, designs, labels, and prints. Only four divisions of the Patent Office are less than one month behind with their work. Even in the trademark division, the examiner is between two and three months in arrears in the consideration of applications for the registration of trademarks, there being over 4500 applications awaiting action. Of the remaining divisions of the Patent Office, seventeen are between one and two months in arrears; nine between two and three months; and nine between three and four months.

If applications were allowed as soon as reached for action by the Patent Office, the delay would not be so hard to bear, but when it is remembered that only a very small percentage of applications are granted on the first official action, and that many of the divisions of the Patent Office are over three months behind in the consideration of amended applications, the lamentable condition grows more serious.

We sometimes think that the apportionment of the work at the Patent Office could be better arranged. Take as an instance, Division I, to which has been recently assigned "Railway Draft Appliances." The examiner of this division considers everything relating to tillage of the ground and the construction of fences. There is nothing in common between these two subjects of invention, and railway draft appliances. If it was necessary to give the examiner of Division I more work, there should have been

assigned to him the class of threshing, or harvesting might have been taken from Division V, which now embraces fine arts, book-binding, harvesters, jewelry, and music.

Instances might be multiplied showing that the divisions have been formed without regard to the fitness of things. For instance, take Division XXXIII, recently formed. It comprises canes, canopies, cutlery, domestic cooking vessels, medical and surgical electricity, electric signaling, fireproof buildings, harness, masonry, tents, and umbrellas.

Whether our theory is correct or not, it is certainly true that the Patent Office is rapidly reaching a stage in its work when something will have to be done to insure more speedy action on applications for patents, so that an inventor will not have to wait from six to twelve months before his case is disposed of.

AN IMPORTANT QUESTION DECIDED.

Two Federal courts have recently, without the knowledge of the other's opinion, decided a novel question in patent law.

In Roberts vs. Bennett, a mechanical patent had been issued for a basket, and the question arose as to the validity of a subsequent design patent to the same patentee.

In Williams Calk Company vs. Neverslip Manufacturing Company, a design patent had been issued for a horseshoe calk, and the validity of a subsequent mechanical patent for the same device was attacked on the ground of double patenting.

Both courts arrived at the same conclusion, that a subsequent patent of another class is rendered void by a prior patent issued to the same patentee.

This is contrary to the present practice of the Patent Office, and if these decisions are sustained by the appropriate appellate tribunals, they will serve to modify the practice of granting design patents on inventions which have been covered by mechanical patents.

However, the decisions of the Patent Office have not been uniform on this question. As far back as 1873, Commissioner Leggett decided in *ex parte* Kohler, that a patent cannot be granted for a design shown in a former mechanical patent to the same party, in the absence of a notice given in the specification of the mechanical patent. The Commissioner observed that the design patent might have been granted first, and then the mechanical, but not *vice versa*.

This decision was overruled by Commissioner Marble in *ex parte* Palmer, wherein, the Commissioner decided that a previous mechanical patent is, of itself, no bar to the grant of a patent to the patentee therein for a design shown in such patent.

Commissioner Marble was persuaded to overrule Commissioner Leggett's decision in *ex parte* Kohler by the decision of Mr. Justice Blatchford in *Collender vs. Griffith*. In that case, the design patent had first been granted; and the question at issue was whether it was a bar to

the grant of a subsequent mechanical patent. The court said: "The claim of the design patent is to shape. The claim of the mechanical patent is a claim to a mechanical combination. The shape of the structure may be the same as the shape in the design patent, but the subject-matter of the two claims is not the same. The shape covered by the claim of the design patent may be attained without following the mechanical combination claimed in the mechanical patent."

In view of this language, Commissioner Marble held that the court meant to declare the subjects-matter of design and mechanical patents to be entirely different, for in one case, ornament is the basis, and in the other mechanical function, and decided that "whichever kind of patent is first obtained by an inventor, it will not be a bar to the grant to him of a patent of the other kind."

It will be interesting to follow these two cases, which have just been decided by different courts, to see how they are viewed by the courts of appeals of the two circuits wherein they are situated. We venture the opinion that the decisions will not stand, for we believe that Justice Blatchford was right when he decided that since the subjects-matter of the claims of the two patents is not the same, the patents are different in kind; and, therefore, one patent cannot be regarded as the same as the other patent, and the obtainment of two patents on the same article, is not a case of securing two patents for the same invention.

PIRACY IN TRADEMARKS ABROAD.

Much additional complaint has been made by manufacturers owning valuable trademarks, who have neglected to register them in Cuba, and have found that their marks have been registered there by those who are not entitled to them, and yet are secure in the possession of the marks under the Cuban law, which grants ownership to the first applicant for registration. These trademark pirates register in order either to secure a monopoly of the sale of the goods, or to compel the rightful owner to make "pecuniary arrangements" with them for relinquishing the legal rights acquired.

Cuba is not the only country where the first applicant for the registration of a trademark thereby secures the legal ownership of the mark, and indeed there are some advantages in a law of this kind, arising from the fact that a mark once registered can no longer be disputed: so that if the rightful owner takes advantage of this he needs to fear no infringement by others. Argentina has a similar law. The points in favor of it are set forth perhaps as strongly as possible in the argument of a case in which the plaintiff had registered certain marks in Argentina for phonographic records, which marks, it appeared, were the property of an American company from which the complainant had purchased his goods. The defendants also undertook to import goods from the same manufacturer under the same mark.

Criminal proceedings were instituted

against them by the plaintiff for infringement of his marks. The Argentine court held that the question of the right to a mark in a foreign country was not pertinent to the matter, and that a foreign trademark was not entitled to protection in Argentina except as derived from registration under the law.

It has been understood that in Spain also the ownership of a trademark was dependent on the registration thereof. It appears that a court decision in Barcelona has modified the rule somewhat in favor of the owner of a mark which may have been registered by one not entitled to its use. The effect of this decision appears to be that registration is essential to the prosecution of an action for infringement or recovery of damages, but that priority of use enables the owner to procure the cancellation of a wrongfully registered mark by another. This right is lost in three years in cases where the registrant has registered the mark in ignorance of its prior use by another, and in any event in six years the ownership is vested in the one who may have registered the mark—*American Industries*

TREND OF INVENTIONS.

The classification of new inventions in the United States Patent Office which has been carried on for some years past has resulted in showing that there are 146 different sections of inventive activity. Aside from the simpler methods which are of benefit to those who look up patent cases, the classification reveals more accurately than heretofore the tendency of American invention. Incidentally, Chief Frank C. Skinner, of the classification division, has become a walking encyclopedia on information as to material progress in the inventive world.

So far there have been in all about 800,000 patents secured from the Patent Office since its establishment. Approximately, 40,000 patents were issued last year, and last week there were 1,086 new applications filed and 2,698 amendments presented in old applications. Today America leads the world, as it has done for a long time, in inventions of every kind.

The Patent Office has no statistics of the number of patents on any one subject, but those who have been working on the files of the Office for years, tell of tendencies along certain lines of activity; for instance, in 1896, at the height of the bicycle craze, when, instead of the usual five examiners in a division, thirteen were required to do the work. Now, one examiner attends to bicycles and does other work besides. The bicycle has been supplanted by the automobile, a large number of patents for new developments of which are constantly being filed under classifications of vehicles, motive power machines, and steam and gas engines. The number is on the increase every week.

The desire of the human family to imitate the birds and fly through the air is shown by the number of patents on that kind of invention. Only five or six a month appear at the present time, but this division is looked upon as sure of growth. The inventions in

transportation continue, however, to hold the palm and lead them all. Sixty-eight applications of this sort were recently filed in one week, and despite the fact that the railroad has reached a very high state of efficiency, the development of the appliances now in use goes merrily on. In general machinery, the steam turbine is being developed, especially for use on the big battle ships, one having been ordered for the biggest battle ship in the world, by the British government. Pneumatic tools cause an increasing number of patents.

On munitions of war the experts who have been examining patents for a decade past have noted that there is little that is radically new, and that guns are merely being developed to greater efficiency along the same lines. New devices for sighting, which make allowances for so slight a factor as the humidity of the atmosphere or the velocity of the wind, are frequently filed. Wireless telegraphy finds many interested inventors seeking improvement, and this class of patents has reached a goodly size. Cash registers which actually separate the amounts into different divisions and add them are being perfected. In building, a large number of inventions on concrete re-enforcement have been placed on file, one of them showing a process of making hollow concrete blocks near the building which is being erected, and using them instead of brick. It is claimed that they make the house cooler in summer and warmer in winter, and that they are cheaper.

Games and toys for amusement are on the increase. So highly developed have the automatic toys become that one imitates a hired man milking a cow. A patent for a "universal garden tool" has long been a joke with the patent examiners, who contend that nearly every inventor expects to confer some great benefit upon the human race. A little while ago a man invented a combination tally block, sponge, dice box, pencil, and mirror. In the claim filed by him he said:

"I claim it will become a constant companion to benefit humanity and countless millions to come. The man of business will carry it in his coat pocket and rejoice to be in a position to meet any emergency. A hole in his pocket will not bother him, as he may carry his loose change in the tally block. The sponge may be changed at will and contain the perfume for the permeation of his clothes. When walking about the street his nose is apt to offer a good landing place for particles of soot, but the little mirror on his tally block helps him to rub it off with his handkerchief. Coming home when baby is cutting teeth and cross, he can make it change into a smiling miracle by pulling out his tally block and juggling with the dice box."—*Washington Post*.

Railroad Ties of Leather

German papers report that railroad ties of leather are used on the Russian government railroads. All sorts of material have been used for this purpose, but chiefly tarred wood and iron. No tie has given perfect satisfaction; the wood decays and the iron changes under the influence of temperature. It is expected that leather ties will not

be perceptibly affected by either air or heat, nor will they split when nails are driven into them. If leather ties prove more durable than wooden ones, they may in the long run be even less expensive.

Telephone Fishing Appliance.

A fish telephone is the latest achievement of science as applied to the piscatorial industry. That fish should announce their approach to a certain spot by telephone is an idea fantastic enough to have originated in a dream, but as a matter of fact, that is what the invention amounts to. Since Norway is one of the greatest fishing countries in the world, a large proportion of its population obtaining their livelihood on the water, it is not surprising that it is to a Norwegian that the world owes this latest device. In practical application, it is a telephone by which the noise made by fish in the depths of the sea can be heard. The instrument consists of a microphone in a hermetically sealed steel box. It is connected with a telephone on shipboard by electric wires, each sound in the water being intensified by the microphone. The inventor asserts that with its aid not only the presence of fish, but approximately their number and kind, can be recognized. When herrings or smaller fish are encountered in large numbers, it is explained, they make a whistling noise, and the sound made by codfish is more like howling. If they come near the submarine telephone their motion can be distinguished. The flow of water through the gills produces a noise similar to the labored breathing of a quadruped, and the motion of the fins produces a dull rolling sound. It will be interesting to note if the apparatus will come into general use.

Chemical Automobile Fire Engine.

Leicester, England, claims to be the first city in the world to have a chemical automobile fire engine. An automobile, capable of traveling over 30 miles an hour, carries the apparatus, which consists of a large cylinder, partly filled with water in which carbonate of soda is dissolved. A bottle filled with sulphuric acid is at the top of the cylinder, and when a stream of water for extinguishing a fire is needed, the bottle is turned upside down, whereby the acid flows into the solution of soda, and carbonic-acid gas is developed. The mixture is kept stirred up by means of rotating blades. Carbonic-acid gas is so quickly formed that the pressure in the cylinder soon amounts to 150 pounds. This is sufficient to throw 40 feet high a stream four-fifths of an inch in diameter. When this water reaches the fire, the carbonic-acid gas escapes in large quantities, crowds out the air, and prevents combustion. The cylinder is pumped out in four minutes. The city authorities will probably soon make a report as to the efficiency of the engine.

Subscribe for the Age.

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the INVENTIVE AGE, which publishes a list of all patents issued each month, and the current decisions of the courts in patent, trade-mark and copyright matters. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

Products of Coal Tar.

Perhaps no single product is capable of as many varied and almost magical transformations as coal tar. Once a worthless and troublesome waste product of gas works, it has become a source of so many useful articles that it would be almost impossible to compute the wealth with which it has enriched the human race. No one would imagine that out of this black, sticky fluid there can be evolved such widely different products as the most brilliant dyes for the use of industry, the most exquisite perfumes for my lady's toilet table, and a variety of medicines. But coal tar is in reality the most complex substance known. A recent list contains one hundred and nineteen separate constituents, and the possibilities are by no means exhausted. All the products of coal tar are carbon compounds, and since almost everything in the world is a carbon compound—including our foods, our clothes, our very bodies, everything in short that is not of a metallic or mineral nature—it will be seen that the chemistry of coal tar is very closely akin to creation itself.

Coal gas was first used to light city streets in the year 1814, in London. It might have been done long before, for a small boy can make illuminating gas by putting bits of soft coal into the bowl of a common clay pipe, sealing up the mouth with clay, and heating it. First smoke streams out of the stem; then a clear, inflammable air, which will blaze when a lighted match is applied. The problem of disposing of the residue of tar soon confronted the gas company. The managers were glad to pay people to come and take it away; sometimes they burned it, but it was an awkward fuel to handle. They little guessed that it would turn out to be a veritable philosopher's stone. In the United States, even at the present day, comparatively little coal tar is made at city gas works. The illuminating gas produced by distilling soft coal in an air tight retort has been superseded by water gas, which is made by heating anthracite white hot and passing a jet of steam over it. The result is the generation of several gases, chiefly carbon monoxide, which is subsequently mixed with naphtha, obtained from the refining of petroleum. The naphtha makes it burn with a bright and shining blaze, brighter than the gas of coal, and cheaper to the gas companies—though incidentally it is much more poisonous. Coal gas merely smothers people who blow out the light; carbon monoxide, the water gas, poisons them; and this is the reason why city gas is so popular as a means of suicide.

In the smaller towns and in older gas works, however, they distil coal and get coal tar. Taken in its primitive form, it can be used for pavement, though it is not so good as asphalt. It is also used for tarring paper and felt for roofing and lining houses. Mixed with lime and liquefied, it becomes a fine acid proof and water proof varnish. Boil stone in it, and the chisel will not scratch the stone afterward. Fireclay pipe, fragile and not even water tight, when treated in this manner becomes hard, impervious to water and acids and little susceptible to changes of temperature. Roofing tiles so treated are cheaper and better than when glazed. Printer's ink is made of coal tar, and its share in the rubber boot industry is suspiciously large.

Distill the tar, and you obtain first oils lighter than water, such as benzenes and toluenes, and also heavier oils, naphthalenes and anthracenes. In the old days of coal gas, manufacturers were much worried because their mains were stopped up with a white, crystalline stuff that stuck to the pipes like bark to a white oak. A case is on record where, in order to get any gas to the consumers through

a 20-inch main, chains had to be dragged through to loosen up the deposit and then five revolving brushes of different sizes run through. A span of horses, rigged to a snatch block on a telegraph pole, started the pole out of the ground before the last brush budged. This troublesome white stuff was naphthalene, which forms the basis of moth-balls, so universally used for the preservation of winter clothing against insect depredations.

Another product of these heavier oils is carbolic acid. When one thinks what the world would be without this disinfectant, and how helpless modern surgery would be without this indispensable aid to antiseptics, one realizes anew the value of coal tar.

As for the lighter oils, they are useful chiefly in combinations. From toluene is made saccharine—a powder three hundred times sweeter than sugar. Benzene—which must not be confounded with benzine, the cleansing fluid, which is a product of petroleum—combined with nitric acid results in oil of myrbane, which again appears in soaps, shoe blacking, etc. But the most valuable substance that can be made from this oil of myrbane is one identical with the active principle of indigo; in short, it is the basis of the aniline dyes which have replaced natural coloring materials the world over.

There is a story, in connection with this discovery, that an Englishman, about half a century ago, was trying to make artificial quinine out of oil of myrbane—quinine being not so distantly related to aniline. After many days of unsuccessful effort, he emptied the slops of his experiments into a big beaker and set it in the window, while he threw himself into a chair, downcast and discouraged over his failure. After a time he happened to look up, and in the beaker there glowed the most beautiful and gorgeous purple dye—the first artificial coloring matter known to man.

It was soon found that the aniline principle in coal tar could be readily transformed into red and blue; but green baffled the experimenters for a while. A dyer who was working with an aldehyde on a sulphuric acid solution of aniline red could not fix it. He chanced to mention his trouble to a friend who was a photographer.

"Have you tried hyposulphite of soda?" asked the friend.

"Do you think that would do any good?"

"Sure. Whenever we want to fix a picture, we use hyposulphite of soda."

The dyer tried it: and by an action entirely different from that which serves the photographer, and one that it would have been utterly impossible to predict in advance, the drug made a fast color of the most brilliant and beautiful green. Many of these chemical discoveries, like the above, were more or less accidental, and were made by mixing things together to see what would come of it.

But coal tar can also be transformed into medicines. When we have a headache, we take antipyrine or acetanilid or phenacetine, and we are taking coal tar. When suffering from insomnia, we resort to trional or sulphonal or hypnone, or any one of another long list, we are again relying on coal tar. The salicylic acid that banishes our rheumatism and kindred ailments is another product of this magician's bag. The United States Dispensary contains over a hundred coal tar derivatives and others are being discovered almost daily. In an entirely different direction, the tar produces artificial musk, worth \$240 a pound; coumarin, which is the odor of new mown hay, and carnation, hyacinth, orange blossom, cherry laurel, vanillin, and a variety of other perfumes. The possibilities of coal tar, so far from being exhausted, are increasing with every stroke of the clock, and one might easily fall into the habit of expecting anything of this adaptable substance.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy; twenty copies \$1.50.—Please give correct data in ordering.—Address,
THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

Issued May 30, 1905.

MECHANICAL PATENTS.

Continued from June number.

Grinding screw cutting dies or chasers Machine for E. J. Miller
Hammer, Centrifugal L. L. South et al
Hammock clamp Z. L. Cladbourne
Hat fastener, Roller W. W. McNaughton
Hatch L. Williams
Hatchet attachment J. O. Oliver
Hay carrier W. & C. A. Gutenkunst
Hay fork T. Widdop
Hay loader and stacker M. R. Jenkins et al
Hay raker and loader L. G. Shultz
Heat generator and furnace B. Holbrook
Heater W. H. Jones
Heating systems, Heating and circulating water in hot water C. C. Peck
Hide working machinery J. W. Deckert
Hides, skins or leather, Machine for treating E. E. Chain
Hip strap drop and trace carrier J. A. Buckstaff
Hog trap W. S. Schwartz
Hoisting and power transmitting machine D. Abrey
Horse blanket R. A. Seaders
Hose coupling J. F. McElroy
Hose supporter M. B. Hammond
Hose supporter device and corset steel lock, Combined M. B. Gerstie
Hydrocarbon burner P. J. Owens
Ice mold B. F. E. Kelake
Icing, Machine for coating biscuits or other articles with sugar, chocolate or similar H. Pecher
Illuminating effects, Apparatus for producing O. Jughans
Incubator automatic cut off G. Evans
Indicator, or sign E. M. Skinner
Ink well, pen, and blotter holder and calendar, Combined sheet metal W. J. Dietrich
Insect trap G. Andrus
Insect trap E. A. Dolie
Instruments, Device for suspending and securing the supporting rods of A. Pfeiffer et al
Insulated rail joint S. S. Deemer
Insulating support, Third rail E. W. Farnham
Insulators, Rail clip for third rail G. L. & W. Courtenay
Ironing machine W. E. Andree
Jar cover, Display H. G. Roth
Knitting machine feeding mechanism Straight I. W. Lamo
Lamp, Acetylene gas generating S. N. Bushee
Lamp, Electric R. Kuch
Lamp extensible support, Incandescent P. Forg
Lamp holder and head protector, Miner's I. Wanting et al
Lamp, Miner's E. F. Long
Lamp regulating means, Electric A. G. Davis
Lamp, Street R. Momand
Lamps or gas heaters, Preheating chamber for gas C. C. Malton
Latch L. C. Campbell
Lathe holding strip N. Coleman
Lathe appliance A. T. Anderson
Lathes, &c., Indicator for H. J. Nichols
Lathes, Stub extractor for wood turning W. E. Buxton
Leather stoning out machine J. W. Deckert
Ledger, Manifold pad A. F. Schultz
Lens cutting machine G. H. Day
Life saving appliance C. Dougherty et al
Ligature container P. S. Bauer
Lidotype machine 2 pats. J. R. Rogers
Liquid dispensing apparatus S. W. Morau
Lock and latch H. G. Voigt
Locking device, Strap S. J. Oford
Locomotive boiler E. Blass
Locomotive cellar puller J. F. Killian
Log turning mechanism reissue W. M. Wilkin
Loom for weaving Axminster or other pile fabric carpets T. Cooper
Loop coupling W. Smith
Lubricator G. B. Stock
Lubricator T. Davis
Lubricator W. A. Hatcher
Manhole and junction box, Combined L. C. Reed et al
Massage machine G. F. Trotter
Match box A. E. Smith
Match splint forming machine A. B. Calkins
Matrix assembling machine escapement mechanism B. F. Bellows
Matrix distributing machine B. F. Bellows
Measurer, Skirt A. T. McCampbell
Measuring device, Cloth W. A. Taylor et al
Measuring device, Trousers W. C. Mertz
Measuring machine, Electrical F. J. Perkins
Merry-go-round or carousel J. E. Prault
Metal working machine C. Prouty
Metals, Electrolytic deposition of H. C. Harrison et al
Meter dia's J. M. McPheeters
Milk, cream, &c., Treating S. R. Kennedy
Mineral reclaimer and saver H. L. Orr et al
Molding apparatus N. A. Austin
Molding apparatus J. A. Brodin
Molding flash J. W. Myers
Motors, Operating alternating current, A. Churchward
Mower or harvester finger bars, Attachment for W. Gaterman
Musical instruments, Tracker for mechanical T. Danquard
Musical stringed instrument sound post L. C. Smith
Necktie H. Apfelbaum
Nest, Hen's J. O'Dell

Nickel from nickel bearing substances, Extracting H. A. Frasch
Nozzle for wet concentrators, Jet J. L. Weaver
Nut lock A. P. Steel
Nut lock J. E. Ford
Nut lock washer W. B. Neel
Oiling device R. Nelson
Onion digger A. B. Richards et al
Packing, Metallic J. G. Callan
Packing, Metallic J. H. Smith
Packing, Piston rod metallic F. E. Small
Paper feeding and controlling device G. W. Donning
Paper in autographic registers, &c., Centering device for rolls of E. J. Barker
Paper receptacle O. L. Parmenter
Paper, Weatherproof C. S. Bird et al
Parcel carrier box C. F. Coleman
Pavement F. E. Ludell
Piano action A. Bergeron
Piano fall board mechanism W. P. Kelly
Picture hanger, Adjustable B. G. Wallace
Piles or pipes, Device for facilitating driving W. T. McClintock
Pipe coupling, Universal A. F. Wichman et al
Pipe joint, Metal C. C. Peck
Pipe joint, Wood C. C. Peck
Pipe joint reamer attachment W. E. Eichhoff
Piping, Elbow terminal for ventilation D. F. Asbury
Piston L. Anderson
Planter W. L. Paul
Planter, Cotton W. L. Paul
Plate closing and riveting machine Hydraulic H. A. Calpeier
Pliers, Lathing O. H. Erksen
Plow F. Noguez
Plow R. T. Dale
Policeman's billy, Illuminating G. R. Somes
Potato digger E. Dossmann
Powder, Apparatus for the manufacture of strips of explosive F. I. du Pont
Powder die A. F. du Pont
Press W. J. H. Fellers
Printer and supplier, Paper G. H. E. Davis
Printer's wood borders, Machine for making E. B. Caldwell et al
Printing press plate holder S. W. Marvin
Pulley, Sash A. Johnston
Pulp distributor A. E. Johnson
Pulp kegs or other packages, Making E. Moxham
Pump T. M. Pearson
Pump valve seat, Removable P. Holtzmann
Pumping and distributing apparatus Oil E. Lacroix et al
Punch Ticket R. H. Laing
Punching machine C. R. Gettier
Rail joint G. Euehard
Rail joint C. L. Andrews
Rail moving apparatus, Switch, 2 pats. M. D. Hanlon
Rails or shapes, Manufacture of manganese steel R. A. Hadfield
Rails, Device for preventing the creeping of H. Dorpmuller
Railway block signal system F. P. Button
Railway frog S. A. Anderson
Railway, Pleasure A. Bragg
Railway rail cleaner and oiler G. Huff
Railway rail supporting brace W. F. Bossert
Railway safety rod B. Sargent
Railway signal or alarm, Electric E. L. & J. W. Tatum
Railway strain device, Electric H. P. Davis et al
Railway supporting and strain device, Electric H. P. Davis et al
Railway switch W. P. Gray et al
Railway tie P. J. Garrison
Railway tie J. R. McFall
Railway tie J. E. Owens
Railway tie D. V. Howell
Railway tie plate A. A. Mott
Railway track J. R. McFall
Railway trains, Automatic stop mechanism for G. B. Gelakoski
Receiver or catch basin J. M. Thompson
Receptacle and cover F. W. Young
Receptacle formed from expanded sheet material J. Samuels
Refuse burner J. R. Kilbourne
Ring generator J. C. F. Malthaner
Riveting and plate closing machines, Pneumatic attachment for H. A. Carpenter
Riveting process J. M. Dodge
Rocket H. P. Diehl
Root collar and flashing, Molded L. C. Baker
Rotary engine L. T. Stewart
Rotary engine W. C. Wolfe
Rotary engine S. J. Lawrence
Rotary explosive engine J. Bartosik
Rule, Parallel P. Cumming
Running gear S. S. Breese et al
Safe alarm, Mechanical E. Reibischung
Sand blast regulator F. W. Breidster
Sand mold slip over box W. E. Rockwood
Sash frame, Metallic window E. G. Budd
Saw F. A. Wuest
Saw gumming machine F. Stahl
Sawhorse W. S. Schuyler
Scale truck and frame H. A. Sheldon
Scale, Weighing and computing G. M. Brewer
Sewer inlet S. C. Corson
Sewer trap B. Dale
Sewer trap flushing device S. A. Johnson
Sewing machine J. A. Vigliani
Sewing machine cabinet W. J. Craig
Sewing machine, Shoe H. A. Ballard
Sewing machine, Shoe J. Callahan
Sewing machine shuttle H. A. Bates
Shade fixture, Adjustable window F. S. Williams et al
Shaping machine J. C. Steen
Sheet metal pipe T. S. Friend
Shelf, Book 4 pats. H. P. Macdonald
Shifting device, Automatic G. B. Petsche
Shoe fastener L. C. Stringham et al
Shoe fastening L. Duval
Shuttle box motion G. W. Kuenneth
Sifter C. A. Rose and
Sign U. B. Stuart et al

Signal E. T. Atwell
Signal transmitter indicator G. W. Lorimer
Signaling indicator, Electric W. Starkey
Signaling system, Electric block W. M. Murphy
Skirt marking guide A. T. McCampbell
Sleigh runner for wheeled vehicles M. Holtman
Snap switch W. A. Church
Soap stick holder, Shaving N. C. Bradley
Soldering iron and torch, Combined self-heating J. W. Bachanan
Speed indicator E. J. Hodgson
Speed indicator J. E. Hadley
Speed indicator and time register W. G. Todhunter
Speed limiting device, Electric B. G. Barlow
Spike C. Shaffer
Spindle M. Subber
Spindle A. S. Browne
Spindle forging machine H. A. Owen et al
Spinning machine thread guide attachment G. A. Fredenburgh
Spinning machine yarn controller J. O'Sullivan
Sprocket wheel, Drive chain J. M. Dodge
Squib, Sectional J. R. Powell
Stage effects, Apparatus for the production of M. Fortuny
Stair F. A. Winslow
Stand pipe C. Guillard
Static machine stationary plate B. E. Baker
Steam shovel G. W. King et al
Steam trap F. T. Bailey et al
Steel, Manufacture of J. Vernon
Steering gear H. M. Lofton
Still, Water E. B. Keith
Stool, Automatic store J. Jameson
Stone saw A. H. MacNutt
Stop for feed mechanisms, Adjustable S. H. Leavenworth
Storage battery R. Macrae
Stove, Gas H. J. Bresson et al
Stove, Heating H. Wolf et al
Stove or range D. D. Berry
Strainer, Fried cake J. Ramsey
Street sweeper J. A. Paige
Stropping machine S. T. Kane
Supporting mechanism G. Cutler
Surfacing machine attachment W. C. Averill
Surgeon's needle holder H. Claverton
Swing car H. G. Traver
Switch operating mechanism J. C. Waldo et al
Synchronous machine control J. B. Taylor
Table locking device, Pedestal E. Iyden
Taping machine A. G. Davis
Telegraph key and switch T. J. McAdam
Telegraphic cipher codes, Marginal and sub index for E. Peycks
Telegraphic transmitter A. C. Gilmore
Telephone mouthpiece protector J. M. Carrere
Telephone transmitter W. L. Wilhelm
Tender steering mechanism J. H. Pittman
Testing machine H. J. Nichols
Thill coupling W. S. Thompson
Thresher tooth A. K. Ageo
Threshing machine straw shaker W. H. S. Brady
Tile, Molding J. A. Feigson
Tin orterne plates, Manufacture of W. G. Brangham et al
Tire protector H. P. Palin
Tire repairing device O. F. Kadow
Tongs H. P. Horn
Tool, Combination W. L. Cooper
Top, Spinning I. L. Davenport
Torpedo Railway C. E. Beckwith
Traction engine M. W. Lewis
Translamer C. L. Fortescue
Tread, Safety T. P. Farmer
Trolley G. V. Miller
Trolley catcher L. B. Stanley
Trolley conductors, Curve pull off for overhead H. P. Davis et al
Trolley guard M. Hariz
Trolley wheel B. Voltz
Trolley wheel brake J. E. Gamaliel
Trolley wire hanger H. P. Davis et al
Trolley wire supporting structure B. J. Jones
Trolley wire switch J. T. Bunn
Trousers hanger M. J. Farrell
Truck bolster and chock, Lumber T. D. Parsons
Trunk, Wardrobe P. Steiger
Tube mill G. H. Sharp
Tubes, bolts, &c., Clamping holder for E. B. Sheppardson
Tubes, shafts, bars, or the like, Machine for straightening O. Heer
Tubular flexible article A. H. Marks
Tubular flexible articles, Constructing A. H. Marks
Turbine F. W. Gordon
Turbine, Fluid actuated F. W. Gordon
Turbine, Steam J. Stumpf
Typewriter F. W. Hillard
Typewriter attachment B. F. Blakeman
Umbrella case, Revolving H. Klein
Umbrella, Folding W. S. Connell
Umbrella rack A. Mikulich
Universal joint I. Deutsch
Valve H. Holzwarth
Valve C. E. Anglim
Valve E. H. Gold
Valve N. White
Valve, Automatic water and gas H. S. Humphrey
Valve, Blowing engine A. T. Keller
Valve, Engine reversing W. J. McCarroll
Valve, Globe C. Durrant
Valve mechanism, Automatic G. M. Spencer
Valve Tank J. J. Turro
Vehicle brake J. H. Porcher et al
Vehicle, Motor R. M. G. Phillips
Vehicle swivelled coupling G. J. Cawley
Vehicle washing apparatus, Overhead J. J. Gannon
Vehicle wheel J. C. Rutherford
Vehicles, Motor mounting for motor I. Larsen et al

Vending machine G. W. Peter
Vending machine, Cigar L. C. Spooner
Vermin exterminating compound J. B. Kirkham et al
Vessels, Conveyer for unloading C. K. Baldwin
Vessels, Device for controlling the motive power of G. G. Boe
Vise D. L. Boyer
Wagon stake socket M. Conrad
Washing machine gearing F. Kostlan
Water circulating device C. Tobelmann
Water cooler (equipment) reissue J. T. Cole
Water heater, Instantaneous J. A. & A. F. Mustee
Water motor C. L. Wilkins
Water tube steam boiler J. D. Bowne
Wave motor T. Rapp
Weed destroyer W. Gaterman
Weighing apparatus F. J. Heybach
Weighing machine, Automatic G. Prokoflew
Wheel guard, Go-cart J. C. Condo
Wind instrument attachment E. Kreutzberg
Window closure, Automatic T. Lee
Window, Ventilating J. F. Chmelir
Wire W. Hoopes
Wrench W. S. Casterlin
Wrench R. A. Hammond et al
Wrench C. H. Smith
Wrench attachment F. M. Uren
Zinc from its ores, Extracting A. G. Betts

DESIGNS.

Clock case 2 pats. T. B. Stephenson, Jr
Fabric, Printed textile 2 pats. E. B. Vandergaw
Lamp hood, Incandescent electric D. M. Gilbert
Stove F. Fieberger

Issued June 6, 1905.

MECHANICAL PATENTS.

Adding machine J. C. Wolfe et al
Adding machine recording mechanism W. H. Pike, Jr
Air brake slack adjusting device L. T. Block
Anchor, Ship's R. Fowler
Animal catching device W. McEndree
Annealing box W. E. Harris
Audiphone instruction apparatus or set H. G. Pape
Axle box, Car W. W. Wallace
Axle gage, Car G. Rixinger
Axle lubricator W. A. Jameson
Bag filling device E. Kaiser
Bags or analogous packages, Fastening attachment for W. H. Coleman
Balcony, Portable F. C. Hotchkis
Baling press J. B. Savell
Balls, Apparatus for casting playing F. H. Richards
Balls, Apparatus for making golf F. H. Richards
Balls, Apparatus for molding playing F. H. Richards
Barber's chair R. Stitts
Barbers' use, Sterilizer for E. O. Bauer
Barge, Ore or coal carrying T. Kiddie
Bearing muller for Huntington mills, Roller H. Eggers
Bed and couch, Combined 3 pats. D. F. Owen
Bed and couch, Combined folding D. T. Owen
Bed, Folding D. T. Owen
Bed, Folding W. A. Arnold
Bedstead, Metal J. F. Brown
Beehive F. Danzenbaker
Beet topper L. Gettelmann
Bicycle support M. R. K. Jones
Bitumen, &c., Apparatus for spreading A. E. Schutte
Bituminous compositions or pitches, Manufacture of F. J. Warren
Block system, Electromagnetic G. Thompson
Boat M. M. Lewis
Bobbin coating machine C. L. Bailey
Boiler J. Rodriguez y Fonol
Boiler tube cutter A. A. Hendrickson
Bolster E. D. Bronner
Bolt turning machine C. K. Lassiter
Book finisher's stand V. Kling
Book, Manifold A. Levison
Book, Mileage exchange C. B. Blythe
Book, Stubless check and columnar cash A. M. Benedic
Boot or shoe wear protector W. E. Colbath
Bottle cleaner W. E. Putnam
Bottle neck finishing tool W. Ebner et al
Bottle, Non refillable R. J. Bartley
Bottle, Non refillable W. I. Wolff
Bottle, Non refillable A. W. Weikert
Bottle, Siphon D. Lardau
Bottle washing machine shot cup E. A. Lufkin
Bottles or other articles, Holder for G. A. Henckel
Brake beam C. H. Williams, Jr
Brake shoe head, Interchangeable and reversible E. L. Adreon, Jr
Breast strap, Pneumatic C. T. Howard
Bridge S. Szentjanossy
Brush A. L. Soan
Brush, blacking holder and dauber, Combined blacking J. D. Bloom
Bucket, Dredger J. J. King
Building construction C. F. Buente
Building construction G. F. Fisher
Burglar alarm system J. Weatherby, Jr
Butter cutter P. F. Gibbons
Cabinet, Kitchen F. S. Thomas
Cake iron A. Andresen
Candies, Machine for forming drop J. M. Demerath
Car, Convertible M. Power
Car door G. Almond
Car door W. F. Wendt
Car door fastener C. W. Gill
Car dump W. A. Lathrop
Car fender J. Hastreiter et al

- Car. Freight J. A. McGhie
Car replacing frog M. H. Kenaston
Car side bearing R. L. Elery
Car step E. Howe
Car. Street H. F. Vogel
Car window passenger shield P. H. Nefflen
Cars. Current collecting device for electric L. W. Pullen
Carburetor J. T. Orr
Carburetor for hydrocarbon engines N. Leinau
Carpet cleansing apparatus A. E. Moorhead
Cartridge M. E. Bailey
Cash register driving mechanism J. P. Cleal
Caster W. V. Morris et al
Censer D. J. Muller
Centrifugal separator W. G. Laird
Chandelier support J. Kuhlemeyer
Chimney D. D. Elder, Jr
Chimney or stack L. E. Croe et al
Chimney stopper C. H. Townsend
Chuck and feed mechanism W. S. Davenport
Churn W. O. Lindgren
Churn E. J. Wilson
Churn W. P. Boone
Chutes, &c. Counterbalancing mechanism for pivoted F. F. Waechter
Clasp G. A. Walter
Clasppin. Ornamental J. F. Kuhn
Clock. Electric self winding A. von Kaspis
Clothes drier. Laundry J. E. Maun et al
Clothes sprinkler for laundry uses. Hand C. Danforth
Coal hod attachment T. A. Girardot
Coke grapple W. M. Pugh
Collar. Pneumatic horse C. T. Howard
Collar shaping means. Laundry J. T. Truit
Collar supporter J. W. Troxell
Comb F. W. Grell
Concentrator attachment F. S. Morgan
Concrete building blocks. Machine for making W. L. Dow
Concrete columns or the like. Mold for L. Schuller
Concrete steel constructions. Collapsible form for L. F. Brayton
Condensing apparatus A. F. Burd
Condensing apparatus. Surface W. Weir
Conveyer. Bucket A. J. Frith
Conveyer. Endless R. M. Andrus
Cords, &c. Device for holding J. G. Morrell
Cotton thinner. Check row A. G. M. Combee
Couch and folding bed. Combined D. T. Owen
Counter or register W. H. Hawkins
Coupling W. S. Halbert
Crane G. W. Shem
Cream separator J. F. McDowell
Cream separator. Centrifugal A. Ponteu
Culinary boiler S. R. McKenzie
Cultivator blade attaching device A. M. Word
Cuspidor C. E. Jones
Decanting fluids into specially prepared receptacles. Apparatus for E. Maynard
Decorating machine H. T. Epperson
Dental appliance. Prophylactic F. H. Apel et al
Dental separator and tooth holder E. D. Barnes
Desk. Portable writing E. A. Simmons
Desk. School A. Fischer
Desk writing attachment C. E. & G. C. Poignant
Dining table or counter N. N. S. Matcovitch
Discharge device D. L. Ellis et al
Display rack G. M. Davis
Display standard. Adjustable A. J. Fall
Ditching jack R. Rue
Dividers C. Sansom
Door hanger and track. Combined G. J. Haenmi
Door hanging apparatus M. H. Seively
Door or screen G. J. Record
Doors. Combined roller support and track for sliding C. F. Kade
Draft equalizer I. N. Noyer
Drain pipe R. S. Cuddihy
Dress form T. P. Colby
Dressmaker's fitting stand V. H. Canham
Drier W. F. Robinson
Drier C. H. Casper
Drying apparatus D. J. MacLean
Dye. Brown anthracene R. Bhu
Dye. Yellow H. Witter
Dye. Yellow tetrazo H. Witter
Educational apparatus R. M. Meili
Educational appliance J. H. Prosser
Egg case B. M. Johnson et al
Egg preserving compound T. Rams
Electric apparatus. Vapor S. Ferguson
Electric heater W. S. Hadaway, Jr
Electric machine. Dynamo C. A. Parsons et al
Electric meter F. P. Cox
Electric motor controller 2 pats A. C. Eastwood
Electric motor controlling device A. E. Handy
Electric time controlled switch J. G. Swallow
Electric time switch J. Helms et al
Electrical contact device H. Beau et al
Electrical distribution system G. F. Apple
Electrical distribution system V. E. Palmer
Electrical motor generator M. Leblanc
Electrical mouth bath J. J. Stanger
Electrode. Bipolar vacuum E. L. Orington
Electrode. Primary battery T. Mann et al
Electromagnet A. Sundh et al
Elevator indicator. Mechanical F. S. Payne
Elevator safety device F. G. Seyfarth
Emery board or sandpaper nail file holder R. Martin
Engine atomizer. Internal combustion W. L. Breath
Engine piston and piston rod. Internal combustion A. M. Brown
Engine steering device. Traction C. Nudd
Exhaust head A. J. Greenaway
Eyeglasses J. D. Lewis
Fastening. Dress E. Bergmann
Feed. Boiler D. Goff
Feed mechanism W. S. Davenport
Fertilizer distributor and planter R. C. Henderson
Filtering system D. M. Pfautz
Fireescape D. N. Luse
Fire extinguisher J. A. Miller
Fire extinguisher valve. Automatic J. Hunt
Firearm trigger mechanism K. C. McNeill
Fishing reel. Deep sea G. M. Michaelis
Flood gate H. D. Merrill
Floor. Spring dancing R. E. Jeffery
Flue stop C. W. Baker
Forge J. E. Washburn
Foundations in water logged ground. Making F. J. M. Mounier-Ducastel
Frogless switch C. M. Allen
Fruit picker C. Lardner
Fruit pitter and parer R. L. Pollock
Fruit pitting machine K. T. Rikert
Fruit press. Power H. M. Barugrover
Furniture fastening. Knockdown F. B. Williams
Fuse. Projectile I. L. Brown
Garment fastening device S. Joseph et al
Garment supporter loop C. W. Stinson
Gas burner G. Machlet, Jr
Gas burner. Thermostatic self closing G. C. Jett
Gas fixture safety attachment W. H. Swift
Gas furnace T. Schramm et al
Gas generator. Acetylene S. C. Corbin
Gas or explosion engine E. C. Richard
Gas producer apparatus C. Ellis
Gasket material R. C. Hance
Ginsaw. Cotton J. R. Miller
Glass beveling machine J. J. Gibian et al
Glass mosaics of irregular shapes. Shearing P. Semmer
Glove A. H. Fisher
Grain and feed drying apparatus C. Anderson et al
Grain drill distributor mechanism F. J. Nochel
Grain prior to grinding. Machine for tempering A. W. Patrick
Grapple hook W. A. Wiley
Grate bar 2 pats A. C. Fletcher
Grinding machine G. H. Newton
Grinding wheel A. Hurford
Grubber. Land S. Cyr
Harvester. Beet A. B. Lovett
Hat pin J. P. Runkel
Hat pin W. Wittschlager
Hat pin F. S. H. Johnson
Hay press J. M. Gurley
Heating apparatus. Water J. Hurley
Heels or soles of shoes. Machine for inserting protectors into R. A. Register
Hoe A. E. Holmes
Hoisting machine or power transmitter D. Abrev
Hoop lug M. Renz
Horse power and watt meter. Direct reading H. Hertzberg et al
Hose coupling A. B. Lees
Hose or tube manufacturing machine E. D. Speer
Hose supporter fastener A. E. Searle
Hydrocarbon burner H. B. Scammell
Hydrocarbon burner E. G. Mummery et al
Hydrocarbon furnace T. A. Tras
Hydrofluorides. Making L. Descamios
Ice creper E. M. Scarritt
Incandescent burner H. B. Cox
Incandescent burner D. Fried
Iron and steel therefrom. Treating ferruginous ore for the manufacture of M. Moore et al
Journal bearing L. A. Keene
Keir. Vomiting E. D. Jefferson
Knitting machine bur wheel S. T. Harshaw
Lacing hook and guard J. Means
Ladder jack W. F. & E. H. Althoff
Ladder. Step J. G. Soergel
Lamp holder C. J. McKinney
Lamp. Mantle E. J. Seltzer
Lead. Making white C. P. Townsend
Letter carrier's pouch R. J. Woodland
Letter sheet C. S. Sundgren
Life preserver holder W. T. French
Lifting jack J. B. Runner
Liquid treating apparatus L. Dion
Liquids. Apparatus for settling and drawing off J. G. Reilly
Loading apparatus T. J. Lower
Locomotive brake T. Lafferty et al
Locomotive casting mechanism B. F. Bellows
Loom for fancy leno weaving F. F. Roche
Loom for leno weaving F. F. Roche
Loom fringe pulling mechanism P. McPeak
Loom. Pile fabric J. F. Duston
Lubricating device J. H. Miner
Lubricator G. Hocks
Lubricator F. G. Swift
Lubricator E. Einfeldt
Magnetic separation apparatus C. O. Payne
Mangle T. S. Wiles
Manhole door for brewers' or other vats, tanks, &c. W. Heiser
Manure separator H. Weller et al
Match striker J. B. Chamberlain
Matches, toothpicks, or like articles. Holder for F. B. Metzger
Mattress. Folding P. J. Levenacker
Measure. Lens J. E. Briggs
Measure winding handle. Tape J. G. Eddy
Measuring instrument R. D. Hunt
Moisture proof block R. R. Hansell
Molding machine O. Bryant
Monkey wrench T. Olson
Motor controlling system A. C. Eastwood
Music leaf turner F. P. Parker
Music. Machine for making perforated P. J. Meahl
Music rack O. G. Gordon
Musical instrument self playing attachment F. W. Draper
Musical instruments. Automatic expression device for mechanical T. Darquard
Nail G. Anderton
Nebulizer O. O. Holman
Non refillable box W. T. Kosinski
Nut lock W. W. Walter et al
Nut lock C. Scudder et al
Nut lock A. C. Fletcher
Oil burner M. A. Fesler
Oil burning apparatus 2 pats J. Palmatary
Oil cup L. Gleason
Oil for combustion. Preparing G. W. Drasel et al
Optometer. Trial frame J. C. McAllister
Ore. Apparatus for circulating and mixing crushed F. C. Brown
Ore briquet W. A. Koseman
Overalls F. G. Dodson
Package. Thread T. H. Williams
Pail or the like separator. Candy R. J. Carrier et al
Paint. Luminous H. Lieber
Palette W. A. Cochran
Paper cutter. Wall A. Johnson
Paper exhibitor. Wall R. R. Roszell
Paper. Pigmented A. Heskief
Pen. Self filling fountain E. M. Heylman
Photographic attachment for firearms D. L. Laur
Photographic picture carrier J. E. von Slawik
Photographic plate holder J. D. Lyon
Photographic printing machine C. Spaulding
Piano automatic playing attachment C. A. Kuster
Piano player attachment F. C. Whitmore
Pianos, &c. Fall board actuated music desk actuating device for R. Moe
Pile fabric. Woven W. M. Stevenson
Pipe coupling A. Higginbotham
Pipe hanger M. C. Rosenfeld
Planer. Barrel head G. Cluthe
Planter. Corn J. M. Jones
Plow W. W. Giddens
Plow. Ditching W. P. Foster
Plumbing T J. M. Wishart
Pneumatic drill 2 pats J. Whitelaw
Pole raising and planting machine W. A. Wiley
Pole. Tent T. I. Hook
Potato screen H. Sauve
Powder pouch M. I. Dowling
Power installation W. Morrison
Power transmitter D. Abrev
Printing machine. Stencil C. L. Burdick
Printing upon pyroxylin materials R. E. Roehm
Projectile J. M. Edmunds
Propeller. Boat A. Worcester
Pump F. E. Ten Eyck
Pump S. B. Leidy
Pump and deep tubular well strainer E. J. Basye
Pump. Oil C. W. Marzel
Push drill Z. T. Furbish
Rag cutting machine L. E. Kennedy
Rail and lantern holder. Guard D. F. McCarthy
Rail joint L. S. & J. A. Mellinger
Rail joint F. P. Meyer
Rail joint riss support L. Mueller
Rail support G. Gow
Rails. Means for securing and adjusting guard W. Wharton, Jr
Railway automatic electric signaling system D. C. Wolfe
Railway block signal system C. Holtmann
Railway carriage automatic coupling A. Beurrier
Railway electrical traction system M. Leblanc
Railway rolling stock underframing R. L. Ettenger
Railway signaling. Automatic F. P. J. Pateuall et al
Railway tie J. Slade
Ratchet tool Z. T. Furbish
Razor strop J. H. Wall
Reduction furnace G. Walzel
Refining engine S. R. Wagg
Refrigerator J. B. White
Register F. K. Fassett
Register partition plate. Credit W. M. Ellett et al
Retort charging apparatus S. J. Fowler
Riveting machine H. C. Pomeroy
Road machine I. F. Noble
Roller mill S. Snyder
Rotary engine 2 pats C. C. Hudson et al
Rotary engine J. A. Peterson
Rotary explosive engine C. A. Dreisbach
Rotary motor O. E. Waxel
Rubber articles. Form for making seamless T. M. Gregory
Rubber dam holder R. F. Ludwig
Rug holder L. P. Wood
Rule J. E. Wilson
Rule holder W. O. Bell
Running gear J. P. Terry
Running gear J. Herby
Sad iron E. S. Reed
Safe. Provision C. E. Blechschmidt
Safes. Day lock for screw door C. E. Blechschmidt
Safety lock S. B. Brandon
Salad dressing mixer and dropper M. C. Horton
Sash balance C. H. Ocumpaugh
Sash holder and alarm W. F. Evans
Sash holder and fastener A. Wilkie, Jr
Sash suspending and operating means. Window A. J. Park
Saw frame. Buck S. Toles
Saw handle G. M. Reddy
Sawing machine. Wooden pin J. C. Rockwell
Scale. Recording H. Hathaway
Scale. Wagon B. T. Jr. & J. M. McDonald
Scraper. Road C. S. Hunt
Screen 2 pats E. E. Hendrick
Screw driver or drill. Push Z. T. Furbish
Screw. Set M. H. Fischer
Scrth snath fastening H. S. Earle
Saler. Fruit jar J. N. Hieronymus
Sealing device W. E. Heath
Seeds. Hulling J. H. Kellogg et al
Separator V. V. Meyer
Sewing machine button adjusting mechanism W. J. Smith
Sewing machine button feeding mechanism W. J. Smith
Sewing machine motor H. J. Young
Sewing machine tension J. B. Watson
Shade roller attachment. Spring E. F. Hartshorn
Shaft lifer F. E. Hall
Shaft or pole coupling and antirattle H. H. Piper
Shears. Tension device for J. H. & W. W. Stull
Sheet speed regulating device. Traveling J. G. Hagey
Shock compressor and binder S. D. McGuire
Show card M. Jackson
Sign. Electric flash J. C. Lion
Sign. Revolving E. E. Boyd
Siphon P. McGrath
Skirt. Combined riding and walking J. M. Goldberg
Slabs, billets, &c. Feeding device for C. von Philp
Slack adjusting device. Automatic J. C. McCabe et al
Sled. Coasting P. V. Fee
Sled. Coasting C. Sattler
Smelting ore E. Riveroll
Smoke consumer and ciuder arrester S. M. Walker
Smoker's article J. M. A. Darrach
Snap switch W. A. Church
Sound box L. P. Valiquet
Spark arrester I. N. Kalbaugh
Speed mechanism. Variable I. M. Foster
Spike lock 2 pats H. S. Waterman
Spinning and twisting ring T. P. Farmer
Spring finishing machine F. M. Stambaugh
Springs. Manufacture of 3 pats F. H. Daniels et al
Square. Folding M. A. Hodgkins
Stacker. Hay H. Bergman
Stamp P. S. Butterworth et al
Stamp mill drives. Apparatus for operating R. Taylor
Starting or stopping mechanism R. F. McFeely
Steam boiler T. B. Lanier
Sterilizer H. W. C. Thomas
Stone or the like mold. Artificial S. A. Wilson
Stool. Milking J. N. Tanck
Stove. Heating C. Miller
Sugar and waste molasses in one operation. Making first H. Winter
Surgical instrument sterilizer J. Parmentier
Switch operating mechanism E. E. Campbell
Switch rod mechanism H. G. Elfborg
Switches. Housing and adjustment for interlocking W. T. Holdeman et al
Syringe. Hypodermic J. De Lisle
Tag holder H. E. Hessefine
Tap W. J. Smith
Target trap F. Hardy
Target trap F. H. Siefken
Telegraph apparatus. Facsimile H. R. Palmer
Telephone current reinforcer or relay 2 pats H. E. Shreeve
Telephone transmitter E. R. Snyder
Telephone transmitter M. J. Fletcher
Tender steering mechanism F. J. Wood
Thermostat J. H. Cornelison
Thread dressing machine G. A. Frederburgh
Threshers. Self pitcher and feeder for J. K. Rouze
Threshing machine self feeder R. & B. Crain
Tin. Stripping H. W. Hemingway
Tire fastener for wheels. Rubber G. T. Reed
Tire. Rubber J. A. Swinhart
Tire shrinking machine. Cold S. N. House
Tire tightener O. Lynch
Tobacco case A. E. & P. F. MaGee
Tobacco pipes, &c. Mouthpiece for C. Petersou
Tool. Combination J. A. Abolt
Tool. Combination E. D. C. Koeth
Tooth. Artificial F. R. Denton
Tooth crown I. W. McClanahan
Tower. Skeleton R. L. Allen
Toy F. Garrecht
Trace. Harness T. J. Warrneuk
Traction machine wheel W. S. Kelley
Train control system. Electric A. Sundh et al
Train controlling mechanism H. V. Miller
Tripod J. L. Gilmore
Trolley D. Lippy et al
Trolley L. M. Steele
Trolley retrieving device H. B. Clarke
Trolley wheel J. Hensley
Truck A. C. Cook
Turbine G. Scheuber
Turbine. Elastic fluid C. G. Curtis
Turbine. Elastic fluid J. H. Wagenhorst
Turbine. Elastic fluid 2 pats E. E. Arnold
Turbine. Elastic fluid C. E. Sweet
Turbine. Fluid pressure H. L. Barton
Turbine. Steam H. C. Schwarze
Type distributing apparatus L. K. Johnson et al
Typewriting machine H. W. Merritt
Typewriting machine E. Grosbois
Typewriting machine A. T. Brown
Umbrella support J. A. Alexander
Valve S. F. Field
Valve. Automatic blast temperature regulating S. W. Vaughan et al
Valve for steam heating systems. Pressure E. F. Osborne
Valve motion. Air compressor F. Gerb
Valve. Reversing J. Whitelaw
Valve. Rotary T. G. Van Sant
Vapor apparatus. Automatic starting device for R. E. Russell
Vegetable cutter B. C. Steffens
Vehicle spring M. M. McIntyre
Vending apparatus. Check controlled D. M. Dorman
Vending machine V. E. Randall
Vending machine. Stamp G. T. Srite
Veterinary obstetrical instrument C. Tyler
Vise. Bench E. S. Williamson
Wagon box. Metal L. Anderson
Wagon. Lumber F. L. Joubert
Warp creel I. E. Palmer
Warp thread drawing in machine U. Ganz et al
Washboard B. F. Tyler
Wash machine M. C. Wilkin
Washing machine J. H. Dorval
Water bags. Device for the production of the circulation of water in warm M. Bauer
Water heater A. Stewart
Water heater A. Stewart
Water pad and advertising device. Combined A. H. Cobb
Waterproofing compound C. G. Coburn
Weaver. Animal M. W. Brander
Weeder T. Snyder
Weeder L. E. Waterman
Weeder T. G. Thompson
Wheel protective covering. Vehicle A. H. Rochfort
Window. Metallic C. H. Hopmann
Window raising and locking device F. Bruno
Window. Self balancing H. C. Smith
Window ventilator F. L. Magee
Wire stretcher J. Mossman
Wire tightener C. L. Sawyer
Woodworking machine R. Blair
Wrench H. A. Piquette
Wrench J. Roemer
Wrench W. M. Pitzer
DESIGNS.
Cigar band 2 pats L. C. Wagner
Clock case J. R. Ansteth
Locket or similar article of jewelry G. Mason

Mirrors, brushes, or similar articles. Back for hand H. S. Beach
Picture frame W. L. Cooper
Stove M. R. Lehman

Issued June 13, 1905.

MECHANICAL PATENTS.

Adding machine C. W. Horn
Advertising device G. F. Bagby
Aeronautic apparatus G. McMullen
Air brake angle cock holder and pipe clamp.
Railway car R. R. Jones
Air mixer T. M. Dudgeon
Alarm and controller for sprinkler tanks, &c.
Automatic H. E. Reeve
Animal dipping tank A. A. Kramer
Antimony Electrodeposition A. G. Betts
Ash or garbage can L. A. Harker
Automatic sprinkler 2 pats. C. E. Buell
Automatic sprinkler R. W. Newton
Automobile drier W. G. Thompson
Automobile folding top W. N. Beecher
Baker's peel R. L. Corby
Baling press P. C. Southwick
Baling press J. H. Pitkin
Basket or crate W. Morley et al
Bearing and ladder support Upper tumbler
..... S. L. G. Knox et al
Bearing for motor vehicles. Wheel
Bed rail locking device A. Stechbarth
Bed spring bottom B. Jungnickel
Bedstead clothes rack attachment. W. J. Dick
Bedstead construction A. Taylor
Boiler H. Molendo
Boiler cleaning compound C. & E. H. Saazar
Boiler tube blower G. E. Averill
Boiler tube cleaner E. M. Adams
Book binder. Loose leaf J. P. Boehner
Book holder J. A. Morrow
Boomerang gun C. L. & E. M. Dawes
Bottle S. M. Shields
Bottle reissue R. G. Julien
Bottle capping machine H. Robinson
Bottle closures. Manufacturing W. Painter
Bottle. Non refillable I. S. Root
Bottle. Non refillable P. B. T. Berner
Bottle opener W. G. Midgley
Bottle stopper A. H. Schmedtje
Bottle washing or sterilizing apparatus
..... O. Eick
Box H. Woerner
Brace rod. Break jointed J. P. Johnson
Brick or briquet machine P. McKinnon
Brush and comb. Combination C. E. Flemming
Brush. Bath P. J. McCarthy
Brush knot making machine M. G. Imbach
Building block and chimney C. H. Nesselroad
Burial casket rough box P. D. Skalen
Burner A. Shields
Butter cutting machine N. Menard
Button P. H. Murdock
Cage hanger L. Braubach
Camera. Multiple view J. W. Anderson
Camera panoramic attachment. Photographic
..... H. R. Kiessig
Can or receptacle L. A. Harker
Car antifriction side bearing Railway
..... J. F. O'Connor
Car automatic passenger register
..... F. L. Kauffman
Car coupling C. L. Dundey
Card door J. M. Hopkins
Card door. Freight J. B. Smiley
Card door hanger G. L. & E. D. Lucas
Card draft rigging. Railway J. F. O'Connor
Card draft rigging. Railway W. H. Miner
Card loader F. D. Buffon
Car. Motor operated dumping C. P. Astrom
Car mover J. E. Anderson
Car propelling mechanism. Railway
..... S. L. G. Knox
Car. Railway H. S. Bayer
Car sill remover J. Kheil
Car stanchion. Railway J. C. Mellor
Car step C. C. Hummel
Car wheel C. T. Schoen
Car wheel rolling machine H. V. Loss
Car wheels. Making C. T. Schoen
Cars. System for transmitting electric currents to J. J. Eagan
Cars. Tandem spring draft rigging for railway W. H. Miner
Carcasses. Machine for treating the offal of animal J. B. Hay et al
Carriage top frame joint W. J. Baker
Cart J. V. Dunn
Cash register T. Carroll
Cement bricks or the like. Roller press for manufacturing J. P. Forngensen
Centrifugal machine W. G. Howell
Channeling machine 2 pats. W. Prellwitz
Checking system. Restaurant A. Nelson
Chilian mill S. H. Pitkin et al
Chimney cap E. C. Dean
Churn feeding apparatus F. M. Mulligan
Cigar holder W. M. Randolph
Circuit breaker and closer for alternating currents A. Gray
Circuit breaker. Rotary mercury
..... 2 pats. A. F. Christmas
Circuit controller J. M. Barr
Clamp Y. Yamamoto
Clasp G. E. Figg
Clay washing machine C. B. Herrick et al
Clevis J. Lend
Clutch Friction W. H. Brown
Coating. Method of L. A. Harker
Coils of rotating elements. Binder for
..... B. A. Behrend
Collar F. H. Norris
Computer C. Campbell, Jr
Computing machine G. O. Gilbert
Concrete building block molding machine
..... L. V. Thayer
Concrete wall constructing mechanism
..... W. H. Pugh
Connecting device A. B. Manchester
Containing can P. S. Teller
Cooking and mixing machine. Corn
..... W. L. Landon
Copper. Hardening and tempering
..... C. R. Plumer
Corn and cob crusher and grinder
..... A. M. Zimmerman
Corner post A. J. Solomon
Cornice brake machine W. M. Johnson

Cot making apparatus H. L. Campbell
Cotton picker's sack and support therefor I. J. Clark
Cradle Weighing and automatic L. Perotti
Cream separator. Centrifugal F. H. Fleege
Crucibles. Manufacture of A. L. J. Queneau
Cultivator L. E. Waterman
Cultivator attachment A. J. Joyce
Curling iron holder M. I. Robinson
Current motor. Alternating G. Winter et al
Current motor. Alternating L. Schuler
Current motor control. Alternating
..... G. Winter et al
Current motors. Operating alternating
..... L. Schuler
Current regulator. Constant F. Conrad
Current system. Constant M. O. Troy
Cushion spring W. R. Smith
Cuspidor G. W. Carr
Cuspidor holder G. W. Haverstick
Cyauids. Making 3 pats. J. Grossmann
Decorticating machine. Textile
..... G. R. de Montlond
Dental matrix retainer R. W. Minch
Derrick Traveling M. A. Bogie
Desk or the like School P. J. Muller
Dial. Perpetual planetary hour W. H. Lewis
Discharging rod J. Morwitz
Display frame H. I. Turner
Ditching machine J. Potvin
Door fastening R. C. Catron
Door lock B. E. Westin
Door stop G. M. D. Heard
Drain apparatus Automatic R. G. McAuley
Dredges. Ladder and tumbler bearing for elevator S. L. G. Knox
Drill C. H. Haeseler
Dye adapted to form lakes. Azo P. Julius et al
Dye. Azo M. Herzberg
Dye. Black azo M. Herzberg
Dye. Blue black azo M. Herzberg
Economizer and smoke consumer
..... W. F. Goodnow
Electric circuit protecting means J. Hamilton, Jr
Electric cut out box A. T. & J. H. Khegl
Electric engine. Reciprocating B. O. Wagner
Electric furnace E. Haagen
Electric furnace F. A. J. Fitz Gerald et al
Electric machines. Remote control of dynamo J. E. Woodbridge et al
Electric motor braking device A. Hultqvist
Electric motor system A. F. Christmas
Electrical harness W. D. McGregor
Electrically propelled carrier W. J. Sumner
Electricity condensing apparatus J. Morwitz
Elevator safety device. Automatic J. A. Gray
Energy. Means for protection against reversal of L. Wilson
Engine and tender coupling. Locomotive
..... J. H. Lewis et al
Engine reversing gear. Steam E. Hocke et al
Engine vaporizing device. Explosive
..... R. E. Olds
Engraving machine W. S. Eaton
Entomological mount C. A. Davis
Evaporator. Fruit J. Patton
Excavator C. & J. T. Kerr
Explosive composition 2 pats. A. Frank
Eye glass case F. A. Tibbais
Fastener I. Jackson
Feed apparatus F. M. G. De La Rochefoucauld et al
Feed regulator M. H. McCoy
Feeder. Time stock V. A. Crossier
Fence A. G. Brust
Fence J. M. Sutherland
Fence. Wire I. K. Hollinger
Fertilizer and making same W. B. Chisum
Fertilizer or seed distributor for grain drills
..... J. F. McNeill
File. Duplicate sales slip P. W. Wirth
Filing and storing letters, &c. Office etagere for T. B. Knudsen
Finger ring C. M. Levy
Fire escape T. Toskey
Firearm hammer lock M. V. B. Allen
Fireproof building construction. Cellular steel
..... H. N. Wilson
Flexible joint T. W. Moran
Flexible materials. Apparatus for fixing
..... M. H. Rumpf
Flooring W. H. Cooley
Flue stopper J. Stuber
Folding box or crate J. Amendt
Folding chair B. C. I. Hallgren
Fork C. W. Robison
Fountain comb W. H. Evans
Fruit gatherer E. A. Gallup
Fruit or vegetable cutter F. R. Richards
Furnace G. S. Kent
Furnace bells. Apparatus for changing blast
..... W. Kennedy
Furnace door G. Dunkel
Fuse Electric N. Mar-hall
Furniture Wire F. L. Waters et al
Fuse. Shell C. P. Watson
Galvanic battery B. J. Blameuser
Game Card G. S. Parker
Garment hook H. Lockwood
Garment supporter J. E. Royall
Garment supporter L. C. Colliis
Gas Generating combustible C. Ellis
Gas meter Dry H. Chrismen
Gas pressure regulator E. Timmer et al
Gas regulating apparatus. Automatic
..... G. W. Wentworth
Gear. Transmission E. J. Swedlund
Gearing Transmission E. C. Richard
Gin feeder E. R. Barber
Glass blowing machine C. F. Cox et al
Glass grinding or polishing apparatus
..... F. L. O. Wadsworth
Glass Making wire F. & A. Shuman
Glass. Manufacturing C. Ellis
Glass drying machine S. L. L. J. & W. F. Crawford
Granular or pulverulent materials into lumps. Converting E. Pohl
Grate bar W. McClave
Grinding or abrasive wheel. Emery or other
..... F. M. King
Gun O. Cook
Gun locking device M. V. B. Allen
Gun register W. C. Rairdon et al
Gun sight J. Kurig
Hair retaining comb M. P. C. Hooper
Hair retaining comb W. Nowacke et al
Hand operated gate J. O. Mitchell

Harness loop H. W. Schlieper
Harness loop J. Reichert
Harness support R. L. Newell
Harrow. Rolling blade or spade
..... G. Svanljung
Harvester. Corn A. V. Kiser
Hat stretcher E. W. Sharbaugh
Hay rack 2 pats. P. A. Myers
Headlight adjuster P. Peterson
Heat coil. Self soldering F. B. Cook
Heater J. Frink
Heating apparatus. Steam E. F. Osborne
Heating system. Hot water W. Bruckner
Hinge P. Richter et al
Hinge for screens. Separable J. F. Ware
Hinge. Gate J. F. Shelton
Hoisting apparatus J. N. Wright
Hoisting device M. Schiner
Hobback J. Gauthier
Hobback device A. P. Weeks
Horn machine N. H. & W. A. Miller
Horn machine N. H. & W. A. Miller
Horse detacher A. H. Pence
Hose coupling. Hydrant G. Rathburn
Hose or pipe coupling W. S. Houser
Humidifier or air moistening apparatus
..... S. W. Cramer
Husking peg J. H. Akin
Hydrocarbon burner J. F. Higgins
Identification system C. F. Bush
Incubator G. Hacker
Incubator egg tray F. Borne
Induction coil G. A. Campbell
Inhaler. Hot air N. K. Morris
Internal combustion engine W. E. Clifton
Internal combustion engine C. W. Weiss
Iron and steel therefrom. Apparatus for treating ferruginous ore for the manufacture of
..... M. Moore et al
Ironing machine. Collar W. J. Quinn
Irrigating implement W. L. Banks
Knitting machine F. B. Wildman
Lacing hooks, rivets, or the like. Machine for setting W. F. Fraser
Ladder E. A. Meacham
Lamp chimney A. P. Storrs
Lamp Electric arc R. H. Read
Lamp holder W. J. Phelps
Lamps. Wall plug for incandescent electric
..... C. J. Malish
Lantern globe lifting device D. C. Kline
Last E. L. Goding
Last Boot or shoe hinged H. W. Mobbs
Leather splitting machine W. D. Quigley et al
Legs Support for the treatment of injured
..... W. Emge
Lens grinding tool. Bifocal J. P. Wimmer
Letter box F. Clessey
Level C. J. Dewaine
Level. Plumb C. V. Parrish et al
Lightning arrester C. T. Mason
Linotype machine O. Southwell
Linotype machine P. T. Dodge
Linotype machine D. S. Kennedy
Linotype machine D. Petri-Palmedo
Liquid cooling utensil. Domestic J. H. Dovie
Lock O. Berry
Locomotive air draft R. F. Cox
Loom picker G. Falke
Lotion E. Monteleone et al
Low water alarm A. Gardner
Lubricator F. O. Farwell
Mail box J. W. Hunt
Mail chute F. E. Anderson
Mail deposit box F. H. Nichols
Mail pouch projector J. D. Barber
Malt turning apparatus E. Worz et al
Match box E. Antoni
Match box holder W. G. Lewi
Match lighter A. C. Loomis
Mattress. Woven wire O. G. Franks
Mattresses. Means for securing the ends of wire C. S. Lloyd
Measuring vessel F. Albo
Meat or poultry holder P. E. Floare
Metallurgical furnace J. W. Lansing
Milk machine J. Stothard
Mine cage J. Herzler et al
Mixing apparatus C. Sahm
Molding machine C. H. Hutchings
Movable elevator W. Norcott
Mower Lawn A. Jackson
Mowing machine D. Griffiths
Music and suspension rod. Combined sheet
..... E. A. Hard
Music leaf turner W. L. O'Malley
Music rack and turner. Combined
..... H. L. Abraham
Musical instrument H. Rue
Nest Hen's E. G. Denison
Nitrites. Making J. Grossmann
Nut lock T. M. Mills et al
Nut lock A. L. Stagner
Nut. Lock C. H. Smith
Oil and making same W. N. Bakeman, Jr
Oil cup F. P. Maize
Oil cup. Automatic E. G. Moore
Oiler A. A. Gray
Ordnance and howitzers mounted on gun carriers Supporting device for the right-adjusting mechanism of E. Ternstrom
Ordnance sight R. P. Stout
Osteophone. Electric L. Potter
Oven G. R. Moon
Oven. Bake A. F. Cherney
Oxygen inflating device T. P. Pomeroy
Packing ring. Metallic H. Gill
Packing Throttle valve W. H. Graham et al
Packing vessel W. J. Patton
Paint and making same. W. N. Blakeman, Jr
Paper holder 2 pats. C. Fisher
Paper or other fabrics. Mechanism for folding and cutting 2 pats. R. C. Seymour
Paring knife H. Lockwood
Photographic shutter R. H. Stocoum et al
Piano H. J. Weller
Piano or organ player. Automatic
..... A. F. Larson
Piano pedal action E. Bornhoft
Piano pedal action J. Dierdorf
Piano player. Automatic A. F. Larson
Piano players or like instruments. Winding and rewinding mechanism for
..... J. Courville
Piano string support F. Denninger
Pianoforte or organ playing apparatus
..... J. A. Armstrong
Pipe coil. Double S. Thurstensen
Pipe coupling H. Stutte
Pipe coupling J. Young

Pipe testing device. Water C. P. Brady
Pistol E. S. Renwick
Placer machine D. T. Barry
Planer. Metal W. J. Hagman
Planter Potato H. J. Springer
Plastic block molding machine
..... J. M. McDowell
Pliers W. C. Wollord
Plow J. Triplett
Plow or cultivator stock J. F. Bowers
Plumb and level. Combined C. J. Dewaine
Pneumatic drill Portable R. A. Norling
Pole tip. Vehicle W. D. Miller
Post card. Pictorial A. Jasse
Post driver W. H. Compton
Presewing vessel. Fruit V. Norman
Printer's block J. L. Lee
Printing press. Platen A. Lagerman
Propulsion of screw steamers A. Rateau
Prospector's drill J. W. T. Olan
Protractor gage R. Heddie
Pulley. Expandable L. J. Johnston
Pulley or sheave. Awning T. B. Smith et al
Pump J. M. Shepard
Punch machine spacing table
..... J. V. W. Reynnders et al
Puzzle C. P. Ament
Pyrograph W. P. Figg
Rail joint F. P. Strauser
Railway block signaling system. Electric
..... C. D. McPhee
Railway carriage automatic coupling
..... J. Willison
Railway cross tie and chair E. Haunt
Railway crossing W. S. O. Iver
Railway crossing A. A. Strom
Railway. Electric W. Chapman et al
Railway frog A. A. Strom
Railway Pleasure J. Kelly
Railway rail joint O. S. Pulliman
Railway road bed construction
..... A. H. Jackson
Railway switch operating device. Electric
..... C. W. Squires
Railway tie C. W. Israel
Railway tie Composite A. H. Jackson
Railway tie cutting machine
..... C. A. Hege et al
Railway transfer apparatus. H. H. Porter, Jr
Railway vehicles or trains. Controlling apparatus for A. M. Mattice
Razor W. R. Christie
Razor stopper J. A. Butler
Reclining chair G. Francis
Reflector. Prism glass shade reissue
..... O. A. Mygatt
Rein holder O. B. Read
Respirator. Fireman's W. F. Merryman
Rheostats and electric heaters. Resistances for
..... H. P. Ball
Rice hulling machine S. C. Buck
Rivet remover M. C. Stranghn
Riveter. Pneumatic spoke C. Burg
Roasting furnace F. Klepeiko
Rock drill lifting mechanism J. Jenkins
Rock stretcher D. E. Norris
Rolling tubular bodies or blanks in a heated state. Cross J. H. Nicholson
Rope socket T. Canfield
Rotary engine O. Jacoby
Rotary engine J. T. Pagan
Rotary engine E. Grubert
Rotary furnace W. S. Rockwell
Rotary motor C. A. Royse
Safe F. H. Harris
Safe or vault dogging means O. Price et al
Safes or the like. System for unlocking
..... W. W. Dean
Salt or pepper shaker L. G. Lease
Sand band N. E. Barnes
Sander S. T. Simmons et al
Sanitary sweeping compound J. Newman
Sash holder J. Weldon
Sash lock J. F. McKusick
Sashes. Glass framing attachment for window
..... C. Yager
Scaffold. Hanging W. H. Morrow
Scale. Recording H. Cummer
Scissors Fruit G. Towers
Scissors or shears P. H. Melard et al
Scythe blade fastener G. M. Fenn
Seal R. C. Hoyer
Seal. Bottle E. J. Brooks
Seal. Cording E. J. Brooks
Sealing cap or closure. Bottle W. Painter
Seaming machine. Can. F. W. C. Volkening
Separator S. M. & W. L. Hanlon
Separator liner. Centrifugal liquid
..... 2 pats. W. W. Marsh
Sewing implement holder C. E. Turner
Sewing machine. Leather R. N. Flanagan
Sewing machine needle motion D. Noble
Shade and curtain fixture J. M. Oliver
Shade and curtain supporting bracket
..... W. P. Gurr
Sheet metal forming machine C. Hoff
Shirt neckband J. D. MacBean
Shock or grain loader W. B. Penrose
Shoe polishing stand W. A. Morton
Shoes. Machine for automatically ironing
..... H. A. Ballard et al
Shredding machine cage M. F. Williams
Sign C. H. Loomis
Silk. Making artificial H. S. Mork et al
Silk. Treating F. Jochen
Skein holder H. L. Turner
Skirt and waist holder C. F. Porter
Sled C. A. Walter
Sleigh knee J. C. Altschwager
Slotting machine J. F. Hoy
Spark arrester J. C. Gregory
Spectacle protector C. E. Linnig
Speed limiting device H. F. T. Erben
Spinning apparatus A. E. Rhoades
Spinning ring A. A. Lovejoy
Spinning spindle A. A. Lovejoy
Square. Bevel O. M. Selbert
Stave Sawing, matching, and jointing machine
..... J. A. Knight
Steamer hopper bunker H. Burrell
Steering device for power boats J. J. Donovan
Steering wheel spindle T. J. Lindsay
Stereotype plate casting mechanism J. L. Firm
Still. Ammonia H. A. Abendroth
Stirrup T. A. Mills
Stone cutter's hand shield W. D. Sullivan
Stone cutting machine. Building
..... J. P. Jorgensen
Stove. Gas or vapor F. G. Dean et al
Street cleaner E. G. Nicewaner

Street indicator.....C. H. Bailey
Sulfuric anhydride. Catalytic apparatus for making.....G. Eschellmann et al
Supporting device. Detachable.....G. C. Johnson
Sweat band.....M. Miller
Sweeper.....C. B. Ryan
Switch mechanism.....F. C. Anderson
Switch throwing mechanism.....M. F. Burkhardt
Synchronizing device.....J. D. Hilliard, Jr
Syringe.....S. M. Weaver
Telegraph apparatus.....P. E. Heina
Telegraphic signaling key.....J. A. Fleming
Telegraphy. Electric.....I. Kitsee
Telegraphy. Transmitting apparatus for wireless.....J. A. Fleming
Tension plate.....S. W. Wardwell
Testing machine.....J. E. Hitch
Theater chair.....E. H. Wiersching et al
Theatrical device.....V. Waid
Thill coupling.....J. D. Tam
Timber preservative.....R. P. Reynolds
Time wheel mechanism.....M. J. Deeley et al
Tire casings to clincher rims. Tool for applying clincher.....E. N. Downs
Tire. Pneumatic.....P. E. Doolittle
Tire. Pneumatic.....C. S. Sears
Tire. Vehicle.....J. C. Raymond
Tobacco cutting machine.....E. Quester
Toilet article.....R. R. Debacher
Tool. Combination.....J. D. Wages
Tool. Pneumatic.....H. Leineweber
Toothpick.....J. L. Smith
Toy.....P. H. Heffler
Track.....H. L. Ferris
Transformer lead.....J. J. Frank
Traveling bag.....G. Tideman
Tread. Elastic.....P. W. Pratt
Tree cancer. Remedy for.....E. Homann
Trolley head. Power driven.....2 pats. W. J. Sumner
Trousers.....F. G. White
Truck. Car.....J. C. Wauds
Trunk.....P. I. Andrews et al
Truss.....F. King
Truss. Hernial.....F. B. Allshouse
Tube, pipe, or cylinder coating machine.....A. W. Buchanan
Tubes with veneers. Covering metal.....L. Coburn
Tubing. Manufacture of.....P. Patterson
Turbine. Elastic fluid.....M. Matthews
Turbines. Rotary packing for elastic fluid.....F. Hodgkinson
Turpentine box.....A. C. McLeod
Turpentine cup.....A. S. White et al
Twyer iron.....C. O. Swenson
Type casting machine centering mechanism.....J. S. Bancroft et al
Typographical blocks. Manufacturing.....G. H. Camels..
Umbrella.....G. Ericson
Umbrella holder.....M. E. Freund
Unicycle.....C. G. Crosse
Valve attachment.....L. L. Downing
Valve.....F. Schreidt
Valve apparatus.....F. Grinnell
Valve. Cylinder relief.....M. R. Zuhder
Valve. Distributing.....J. Trapp
Valve. Engineer's air brake.....J. F. McElroy
Valve for compressed air brakes. Expansion and tripe.....W. R. Smith
Valve gear. Engine.....J. L. Wheeler
Vapor burner.....H. C. Hornish
Vapor burner.....E. Thomson
Vapor burner thermoregulator.....E. Thomson
Vault. Burial.....R. F. Folk
Vault. Metallic grave.....D. B. Hiser
Vegetable cutter.....J. N. Buell
Vehicle brake block.....M. Potter
Vehicle controlling device. Motor.....T. L. & T. J. Sturtevant
Vehicle gear.....F. E. Wilcox
Vehicle Motor.....J. F. Duryea
Vehicle wheel.....T. I. Cochran et al
Vehicle wheel.....S. S. Scott
Vending machine.....G. B. Townsend
Voting machine.....W. J. Wilkinson
Vulcanizing mold.....H. Z. Cobb
Wagon loader.....W. Anderson
Walls. Erecting.....E. Pruss
Washing machine.....G. W. Ray
Washing or churning apparatus.....C. R. Gustavson
Watch stem winding and setting mechanism.....A. Guggisberg
Watchmaker's instrument.....C. M. Thomsen
Water. Apparatus for producing purified.....G. Knodler
Water elevator. Current operated.....T. H. L. G. & C. E. Dolling et al
Water forcing apparatus.....M. A. Libbey
Water heater.....G. R. Burt
Wave motor.....G. M. Lynch
Weaner muzzle. Calf.....W. A. Abbett
Weather strip. Window.....W. Peace
Wedge bolt.....W. Thissen
Weeder.....N. McEachern
Weighing and delivering apparatus. Beet.....J. S. Eash
Weir.....H. S. Herziz
Well drill. Oil.....J. E. Downer
Well piston or plunger. Deep.....C. M. Ray
Wells into stitched seams. Guide for introducing corded.....O. E. Brown
Wheel.....H. T. Hansen
Winding machine.....S. W. Wardwell
Wire. Film coated.....J. G. Callan
Wire. Making ingots for seamless gold plated.....2 pats. H. M. Williams
Wires or bars to pieces of metal. Plug or brush for connecting.....E. A. Richardson
Wrench.....S. B. House
Wrench.....J. W. Woodard
Yoke. Harness.....W. G. Parker

DESIGNS.

Badge.....C. J. Dieges
Chair frame.....W. H. Redmond

Issued June 20, 1905.

MECHANICAL PATENTS.

Acid from iron cyanogen compounds. Making hydrocyanic.....W. Feld
Acid. Manufacture of prussic.....W. Muthmann

Acids. Making dialkyl barbituric.....M. Engelmann
Air compressor regulating means.....G. J. Henry, Jr
Air compressors. Electric unloader for.....W. Prellwitz
Air ship.....J. G. & J. D. Schweers
Album.....J. B. King
Anchor.....J. E. Wolf
Atmospheric motor.....W. M. Fulton
Automobile or other vehicle.....E. Cliff
Axle. Car.....F. M. Thompson
Axle. Lubricating.....O. C. Moon
Baler. Hay.....J. H. Pitkin
Baling press locking device.....H. D. Smith
Baling presses. Device for contracting the discharge ends of.....T. E. & S. R. Sikes
Baru structure.....A. B. Culp
Battery grid.....3 pats. H. C. Porter
Battery plate separator.....H. C. Porter
Bearing for cream separators. Spring.....H. B. Garman
Bearing Meter.....D. De Lancey et al
Bed Couch.....H. F. Sowle
Bed. Sofa.....H. F. Sowle
Bed springs to wire bases. Apparatus for fastening.....J. F. Dixon et al
Beet extracting and cleaning machine.....C. H. Beach
Belt coupling.....W. H. Tims
Binder structure. Adjustable leaf.....D. C. Anderson et al
Book or ledger. Loose leaf.....H. C. Miller
Boot or shoe tree.....J. Greenwood
Bottle. Fraud detecting.....H. Me zinger
Bottle necks. Forming interiorly grooved.....M. J. Owens
Bottle. Non-refillable.....H. S. Arnold
Bottle. Non-refillable.....F. Jost
Bottle stopper.....A. R. Smith
Box filling machine.....A. L. F. Mitchell et al
Box making machine.....J. M. Carncross
Box nailing press.....W. D. Davis
Brake beam fulcrum block.....R. P. Lamont
Brick cutting apparatus.....C. M. & A. P. Steele
Brick re-pressing apparatus.....J. O. Ludlaw et al
Briquetting or molding machine.....G. W. Rigby
Buggy seat. Detachable.....E. Nolte
Buggy top.....J. M. Marmion
Buttonholes in collars. Machine for locating.....H. C. Miller
Buttonholes in collars. Machine for locating and stitching.....2 pats. H. C. Miller
Cable and wire supporting clip. Combined.....W. J. Hiss, Jr
Calendar and office tickler. Perpetual.....C. T. Wilber
Can making machine.....W. H. B. Stevenson
Candy. Machine for making silk.....A. Koche
Car door. Grain.....M. M. John
Car. Dumping.....D. King
Car fender.....2 pats. J. O'Leary
Car or engine replacer.....F. J. Fewings
Car wheel.....J. Rigby
Car window guard. Street.....H. Witte
Carbureter.....H. Brasier
Carbureter. Gas engine.....T. L. & T. J. Sturtevant
Carpet sweeper wheel.....L. P. Halladay
Carriage or other windows. Apparatus for balancing, raising, or lowering.....W. Livingstone et al
Centrifugal machine.....H. J. Hurd
Chain. Key.....D. A. Stowell
Churn.....L. C. McCarty
Churn dasher.....R. A. Wood
Cigar or lamp lighter. Electric.....F. W. & W. H. Smith
Cigar tip cutter.....E. Walker
Circuit closer. Trolley signal.....H. E. Bradley
Cleaning device.....J. R. Staples
Clock. Electric.....I. Kitsee
Clock. Watchman's.....A. A. Newman
Coach pad.....C. M. Crane
Coal or grain distributing apparatus.....C. A. Turner
Collar casing. Horse.....W. O. Barnett
Collar forming die.....H. C. Miller
Comb.....M. Erstling
Combustion. Apparatus for supplying mixed fluids for.....C. Scott-Snell
Commutator brush.....C. W. Speirs
Composition.....J. Murphy
Compressor.....3 pats. W. Prellwitz
Containing and pouring can.....A. H. & T. A. Schlueter
Core composition.....J. M. Hudson
Crate. Banana.....O. Granke
Crushing roll.....O. H. Schoenbert
Curbstones, &c. Device for withdrawing templates in the manufacture of.....A. H. Kennedy
Cuspidor.....2 pats. W. B. & E. P. Alford
Cutting apparatus.....A. J. Connell
Dental obtunder.....B. A. Loveless
Denture. Artificial.....F. E. Roach
Derrailing frog.....W. Y. Rain
Derrick sheave or crown pulley.....J. B. Forker
Designs on velvets. Machine for cutting.....J. F. M. Riffard
Desk.....L. B. Altatter
Die.....G. W. Lentz
Die head.....G. R. Rich
Display rack. Saleman's trunk attached.....J. Richmond
Display stand.....H. Wolke
Display tray.....J. H. Smith
Door fastener.....C. Coleman et al
Door opener.....J. B. Hoopes et al
Draft equalizer.....J. Farmer
Dredging device.....J. L. Searfoss
Drill.....H. M. Norris
Drill making and sharpening machine.....J. B. Word
Driving and compensating mechanism. Bevel gear.....A. P. Brush
Dye. Reddish azo.....K. Krekeler et al
Edge setting machine.....G. M. Carnes
Electric apparatus. Vapor.....W. R. Whitney
Electric circuit.....I. Kitsee
Electric machine. Dynamo.....G. S. Dunn
Electric meter.....I. Kitsee
Electric motor.....T. S. Watson
Electric motor counter shaft attachment.....E. R. Douglas
Electric switch. Automatic.....H. A. Schultz
Electric system.....L. Sjöberg
Electrical switch.....H. Pfirrmann
Electrical wires in conduits. System and means for laying.....G. M. Gest

Electrolytic cell.....J. F. Kelly
Electromagnet switch.....2 pats. A. Sundh et al
Electromagnetic mechanism.....E. A. Buell
Electromedical appliance.....P. Wenigman
Electrostatic apparatus.....L. I. Blake
Elliptic spring.....G. Baumann
Embroidery frame.....J. H. Kamerer
End gate fastener.....W. D. Spencer
Engine.....R. H. Ramsey
Engine muffler. Gas.....D. G. Williams
Engine vaporizer or carbureter. Gas.....C. D. Shain
Engines. Oil or gasoline attachment for gas.....J. E. Green
Envelope.....A. de Saint Chamas
Excavating apparatus.....W. H. Fulcher
Explosive compound and making same. High.....H. Maxim
Fabric or paper to be assembled. Means for picking up layers of.....H. C. Miller
Fasteners. Machine for forming and setting metallic.....R. B. Lewis
Fancet.....D. D. Casey
Feed water purifier.....J. P. Sneddon
Feeding, separating, and band cutting mechanism.....G. F. Conner
Fence machine.....J. W. Keppert
Fence machine. Wire.....J. A. Cocker
Fence. Wire.....J. E. Fredrick
Fertilizer distributor.....M. McKinnon
Fifth wheel.....H. C. Swan
Filaments from viscose. Manufacturing.....C. A. Ernst
File renewing apparatus.....T. S. Hamilton
Filling apparatus.....W. E. S. Strong
Filter.....L. Quimby
Fire alarm circuits. Automatic non interfering repeater for.....W. H. Kirnan
Fire extinguisher valve. Automatic.....C. W. Kersteter
Fire extinguishing building construction.....J. Rogers
Fireproof shutter.....T. T. Lyman et al
Fireproof wall.....A. L. A. Himmelfright
Fishing reel with adjustable end pl. te.....W. J. Jr. & A. F. Meisselbach
Flanger.....R. S. Berger
Flooring. Wood.....E. J. Fulghum
Flower pot holder.....C. Kirchner
Fluid pressure regulator.....J. Cloos
Flushing tank.....O. M. Alexander
Fly trap.....L. Lacaille
Folding and reclining chair.....C. Kompf
Fumigating candle.....J. F. Cunningham
Furnace charging box.....C. L. Taylor
Furnace filling apparatus.....J. W. Seaver
Furnace for melting steel or other metals. Portable.....L. Rousseau
Galvanometer.....E. F. Northrup
Game apparatus.....R. D. Martin
Garment clasp.....A. W. Mensor et al
Gas check.....P. Riess
Gas generator. Acetylene.....B. W. Harris
Gas generator. Acetylene.....J. S. Dickey
Gas heater.....H. W. Martin
Gasket.....F. J. Jewett
Gate.....A. J. McCormack
Gate.....W. C. Hooker
Gate.....P. H. Connolly
Gate.....H. H. May
Gearing.....J. Heberling
Gearing.....E. D. Cahen
Glass. Apparatus for making cylinder.....J. Haley
Glass blowing. Machine for forming parisons for.....W. E. Bock
Glass grooving machine.....A. Wertzler
Glass. Machine for making wire.....C. H. Tondour
Glass tank furnace.....A. O. Hurley
Globe lifting device.....J. H. Hill
Glove protector.....A. R. Liebenstein
Go-cart. Folding.....G. H. Barschow
Golf club.....F. W. Taylor
Grain elevating means. Portable.....O. E. Casey
Gramophone attachment.....G. Konigstein
Grave marker.....B. F. & G. W. Livengood
Grease cup.....W. E. S. Strong et al
Grinding and scouring machine.....L. Schulte
Gun.....C. D. Loutzenhizer
Gun sight.....S. M. Murray
Harrow.....A. D. Angele
Harvester.....A. M. Hemberg
Harvester.....F. J. Lampton
Hat, coat and umbrella rack.....W. J. Steffler
Hat pin.....2 pats. A. A. McKee
Hay tedder fork arm.....W. W. Shaw
Head rest attachment.....J. S. Schaaf
Headlight for vehicles. Dirigible.....O. E. Mitchell
Heat transferring apparatus.....W. T. Donnelly
Hinge.....H. A. Paquette
Hog trough.....O. H. P. & J. W. Good
Horseshoe.....J. C. Flickinger
Horseshoe calk.....C. W. & E. A. Snook
Hose coupling.....J. H. Stephens
Hose supporter clasp.....J. A. Yates
Hose supporter clasp.....E. Cleary
Hydrocarbons. Making sulfured.....F. S. Valentiner
Hydrocarbons or other combustibles. Burning.....J. S. Rogers
Hydroextractor. Centrifugal.....N. Cantley
Ice creeper.....P. Wenz
Ingot stripper.....C. L. Taylor
Inking ribbon attaching means.....M. H. Chapin
Jar fastener. Fruit.....E. Nolte
Jar or bottle closure.....R. E. Browne
Journal box.....J. W. Stephenson
Journal box. Car wheel.....W. M. Duncan
Kiln fire box.....A. Gillett
Lamp adjustable support. Incandescent.....P. Forg
Lanterns. Frame for the glasses of signal.....R. Black
Laundry iron. Electric.....E. H. Richardson
Lawn trimmer.....E. Barton
Leg rest and foot warmer.....E. L. Barber
Level and gage. Combined spirit.....T. D. Rowan
Leveling and pitch indicator. Combined.....M. Gollightly
Limb. Artificial.....E. Koerber
Linoleum manufacturing machine.....G. Frenkel
Linotype machine.....J. R. Rogers
Linotype machine.....P. T. Dodge
Linotype machine.....D. S. Kennedy
Locomotive.....R. Klien et al
Logging car stake socket.....B. D. Tew et al
Loom heedle mechanism.....A. Weimar

Loom jacquard mechanism.....T. H. Halton et al
Lubricator sight.....F. W. Edwards
Lumber tally or recorder.....J. C. Hurley
Magnetic separator.....E. C. Kavanaugh
Mail bag holding device for mail cranes.....J. M. Ludwig et al
Mail bag receiving mechanism.....G. R. Moore
Mail cabinet.....M. C. Finney
Mail deliverer. Rural route.....V. F. Springer
Manual recorder.....J. P. Cleal
Massage machine. Eye.....F. H. May
Meat hook.....J. D. Tally
Melting furnace.....W. E. Williams
Metal coating tank.....G. Porter
Metal cutting machine. Expanded.....G. McKay
Metal mixtures produced as a by-product in electrolytic metal refining. Treating.....A. G. Betts
Metal tie and rail fastening.....T. A. & J. V. Enloe
Metal working machine.....J. Hartness
Mine curtain.....R. J. Good et al
Mining tool.....W. I. Burbee
Money changing apparatus.....W. N. Porter
Motor starter.....A. J. Horton
Mower attachment.....F. & F. A. Blocki
Music leaf turner.....F. J. Ward
Musical instrument.....D. H. Haywood
Nest. Poultry.....G. F. Jenkins
Nut. Lock.....A. L. Eichler
Nut lock.....J. Hileman
Oil burner. Blue flame.....W. R. Jeavons
Opera chair.....M. F. Levy
Ordnance. Sighting and working of quick firing.....A. T. Dawson et al
Paper bags. Producing.....I. Kitsee
Paper box.....H. L. R. Wolf
Paper. Printing.....J. von Schmaedel
Parachute.....J. Edwards
Pavements. Construction of bituminous macadam or other pitch.....J. H. Amies
Pebble mill.....W. A. Koueman
Pen. Fountain.....2 pats. S. H. Hedges
Pencil sharpening machine.....P. P. O'Horo
Perforator.....S. B. Grimes
Photographic printing frame.....F. A. Brownell
Photographs or the like. Receptacle for.....I. Kellner
Pipe coupling.....P. N. Staff
Pipe coupling seat.....W. W. Bateman
Pipe gasket. Laminated.....H. C. Roentgen
Pitchfork holder. Safety.....C. Schade
Plan balsam orriza. Treating the.....W. Sunderland
Planter clutch mechanism. Corn.....R. S. Kirkpatrick
Planter. Seed.....W. Bagger
Plate shears.....C. Swan
Pliers.....P. Broadbooks
Plow.....G. M. Hanger et al
Plow lever mechanism. Wheeled.....S. D. Poole
Plumb bob suspension hook.....A. H. Stow
Pole pieces. Means for attaching.....J. F. McElroy
Pole tip.....S. Bates
Pot or pan lifter.....J. Sjastram
Powder keg carrier.....J. L. Hower
Power transmission mechanism.....2 pats. B. J. Arnold
Precious values in soils. Apparatus for saving.....B. W. Rice
Pressure regulator safety device.....W. U. Griffiths
Printing press.....G. E. Pancoast
Printing press ink distributor. Platen.....C. F. Eckman
Projector.....R. B. Eckman
Propulsion. Marine.....K. O. Woll
Pulley.....E. E. McIntyre
Pulleys. Friction clutch for.....W. D. Massengill
Pump. Rotary.....W. Patterson
Pumping mechanism.....J. C. Neathery et al
Punch and shears.....L. Van Dorin
Quick acting clamp.....A. M. Colt
Railway crossing.....J. H. Byron
Railway crossing gate mechanism.....J. Craig et al
Railway rail joint and chair.....G. Teller
Railway rail stay.....H. H. Spoenburg
Railway signal.....A. M. Bullard
Railway signal apparatus.....L. Reidel
Railway signaling.....E. C. Irving
Railway signaling system.....E. R. Fern
Railway spike lock.....G. A. Allen et al
Railway switch. Electric.....T. B. Stewart et al
Railway traffic controlling apparatus.....T. H. Patenall
Recording mechanism.....C. T. Taylor et al
Records, &c. Locking bar for loose leaf.....M. C. Neuner
Reflector. Daylight.....J. Cossmann
Refractory compound and making same.....G. L. Davison
Regenerative retort furnace.....H. & J. W. Hegeler
Resilient tired wheel.....J. Partington
Resistance. Artificial.....W. R. Whitney
Riveting or the like. Portable tool for.....H. G. Morse
Rolling mill indicating attachment.....H. H. & J. L. Burton
Rolling pipe couplings, &c. Machine for.....H. W. & J. A. Hock
Roof ventilator. Building.....W. J. Kelly
Rotary engine.....G. G. Probert
Rotary engine.....K. A. A. Staahlgren
Rubber tubing, pipe, hose, &c. Coupling device for.....J. J. Mulconroy
Rule. Bevel.....H. W. Young
Sail. Vessel.....G. E. Postgate
Salt. Manufacture of.....H. Tee
Sandpapering machine.....G. P. Harman et al
Sanitary attachment for speaking tubes or telephone mouthpieces.....W. S. Little
Sap bucket cover.....J. F. Warner
Sash fastener.....C. L. Holland
Sash. Window.....G. Burkhardt
Saw clamp.....J. Loken
Saw tooth swage. Inserted.....W. L. Newell et al
Scissors or shears for gaging folds, ruffles, bands, &c. Gage for.....F. M. Underkuffler
Screw driver or similar tool.....J. Swan
Scrubbing device.....F. E. Whitney
Seed dropping mechanism.....T. Ryan
Sewing machine needle and shuttle thread cutting device.....H. C. Miller
Shaft. Divided vehicle.....F. C. Goettert

Issued June 27, 1905.

MECHANICAL PATENTS.

Shade and making same. Pressed and blown ribbed..... O. A. Mygatt
Shoe cushion..... E. J. Bliss
Shoe polishing machine. Automatic S. M. Cohn
Shoe tread piece. Detachable..... J. Martin
Show case..... W. Schmitt
Shutter or door guide Window F. E. Warner
Sickle bar..... W. H. & O. F. Brusman
Sight feed lubricator..... F. W. Edwards
Sign..... C. W. Brudon
Sign Illuminated..... H. Christensen
Signaling mechanism. Block..... C. P. Bass
Silo..... C. N. Crosby
Silver. Coating materials with..... F. Hilpert
Skirt trimmer..... J. G. Zink
Skiing machine..... H. M. Weary
Sound box..... H. C. Miller
Spark plug..... E. E. Clark
Spectacle nose guard..... W. H. Eccleston
Spinning ring hardening apparatus..... C. E. Nutting
Spittoon..... A. Rotter et al
Stairway..... F. A. Winslow
Stairway or elevator. Moving spiral..... L. G. Souder
Stamp mills. Sp'it guide box for W. N. Nolan
Stamp. Time..... 2 pats. reissue W. I. Follett
Station indicator..... J. H. Shepherd
Stay bolt..... G. S. Thompson
Steel Making open hearth..... N. McConnell
Stoker. Underfeed..... E. E. Taylor
Store appliance..... A. Bowers
Store fire pot. Cooking..... C. M. Stroud et al
S. ove. Gas..... R. Sturges
Strainer..... B. F. D. Miller
Strainer. Tank..... J. McAfee
Sulfur from the sulfur containing constituents of petroleum and making hydrogen carbide. Separating..... H. S. Blackmore
Switch..... J. H. Byron
Switch stand..... reissue A. B. Bellows
Tables. Shelf support for kitchen..... L. R. Holbrook
Tablet or pill counting machine..... C. A. Oh erdorf et al
Tablet or plate for facing walls, ceilings, or the like. Enameled metal..... J. H. Kirk
Tag. Laundry..... W. J. Baker
Talking machine stand and horn. Combined..... H. C. Miller
Tape folder..... W. W. Wright
Target trap..... 2 pats. F. Haidy
Teaching spelling. Kindergarten for..... H. H. Steele
Telegraphy. Electric..... I. Kitsee
Telephone transmitter..... D. A. Reynolds
Telephony..... 2 pats. E. A. Buell
Thresher. Bean..... C. H. Schauer
Threshing machine..... W. H. Kettke
Threshing machine..... J. P. Henderson
Threshing machine..... F. Kitten
Threshing machine feeding device..... R. Davies
Tire construction..... W. F. Ellis et al
Tire grip tread. Pneumatic..... W. J. Smith
Tire tightener..... E. Craig
Tire. Veh cle wheel..... W. F. El is et al
Tool. Finishing..... E. Krebs
Tool handle..... H. E. E. Molkenhuth
Top. Spinning..... F. Wieland
Transportation apparatus..... M. Lindblad
Trap..... E. H. Gold
Trolley head for electric tram cars..... S. R. Thompson
Trolley poles of electric cars. Safety device for..... D. R. W. Hardman
Trolley stand..... F. N. Kelsey
Trolley wheels. Combined pin and thermal lubricator for..... W. K. Richardson
Trolley wire clamp..... C. C. B. Kewell
Truck..... J. Blood
Trunk. Combination..... H. Romunder
Tunnels. waterways, or such like. Building of..... E. Molloy
Turbine..... F. M. Faber
Turbine. Elastic fluid..... W. L. R. Emmet et al
Turbines. Intermediate bucket and support for..... O. Junggren
Turpentine or other products from wood. Apparatus for recovering..... R. A. Sibbitt et al
Twyer molds. Mold for producing cores for..... S. A. Kelly
Umbrella cover. Seamless..... C. Smith
Vehicle brake. Rubber tired..... E. Perron et al
Vehicle driving mechanism. Motor..... C. F. Lufkin
Vehicle. Motor..... N. T. Harrington
Vehicle spring wheel. Flexible..... A. Mathey
Vehicle steering gear..... K. Knudsen
Vehicle wheel..... H. E. Irwin
Vehicle wheel..... N. A. Newton
Vehicle wheel..... L. A. Hill
Velocipede. Railway..... C. Brandt
Vending machine..... O. B. Phillips
Vending machine..... A. W. Cordes
Vending machine. Coin controlled R. P. Elliott
Ventilator..... J. Hough
Ventilator..... G. Moulton
Veterinary dental float..... G. J. Reed et al
Wagon attachment..... P. Kenenah
Wagon dumping apparatus. Screening apparatus for..... W. H. Trindle et al
Waist effect. Device for producing long..... D. A. Seligman
Wall lining..... I. A. Olsen
Water closet..... W. P. Rix
Water closet bowl Siphon..... R. C. Wilson et al
Water heater and alarm. Time..... G. W. Richardson et al
Water wheel attachment. Anti anchorage..... G. M. Brown
Weaner. Calf..... J. Fluhman
Weather strip..... A. T. Hansen
Weighing machine. Automatic..... J. Haeberle
Weighing machine. Coin controlled..... A. A. Caille
Wheel..... E. M. Roberts
Whiffletree hook..... E. Pyle
Winding machine. Ball..... A. Mantenfel
Window or door screen..... W. B. Lee
Windows in open or closed positions. Means for positively retaining..... N. R. Evans
Wood drier discharger..... F. Gutmann
Yarn guide..... J. & E. Appleby
Yoke center. Neck..... H. & J. R. Shearer

DESIGNS.

Cigar band..... 4 pats..... L. C. Wagner
Comb..... 2 pats..... F. W. Grell
Range. Portable..... F. J. Frey
Stove. Heating..... 2 pats..... M. R. Lehman
Trousers hanger..... G. T. Robinson

Abraiding machine..... W. E. Nickerson
Adding machine..... G. B. Beale
Adjustable chair..... A. A. Bartlett
Advertising card..... W. K. Achert
Advertising device..... W. C. Carr
Advertising or like device..... C. F. West
Air tank and means for supplying same..... E. Walther
Alarm indicator..... H. Kirch
Alcohol apparatus. Wood..... W. F. Rosenbraun
Amusement and diversion. Means for furnishing..... W. W. De Vore
Amusement apparatus. Revolving..... M. L. Schlueter
Amusement device..... H. S. Thomas et al
Anchoring device. Tractor..... A. Castelin
Animal trap..... W. T. Hambrook
Animal trap..... R. Chasse
Animal trap attachment..... C. Baer
Annealing furnace..... C. Bechstein
Annealing turnace. Metal..... D. Bates et al
Annunciator. Electrical..... L. F. Rose
Auger Earth..... P. Gampher
Autographic register..... E. J. Barker
Automatic lubricator..... E. W. Baird
Automatic sprinkler..... G. Diederici
Automobile..... F. E. Groat
Autovehicle..... H. Austin
Axle. Vehicle..... C. Heilath
Bale confiner..... A. M. Clay
Bar indicator for preventing fraud in dispensing beverages..... H. A. Kueter
Barrel. Metal..... R. H. Hackney
Barrel. Swill..... W. J. Frederick
Batteries. Anode plate for..... H. C. Hubbell
Batteries. Cathode plate for..... H. C. Hubbell
Battery grid..... H. C. Hubbell
Battery jar. Storage..... T. S. Witherbee
Bed bottom Spring..... C. Vailone
Bed. Davenport..... R. Coopersmith
Bed frame..... H. Eckelson
Bending or shaping machine..... G. L. Buzek
Bicycle frame brace or strut..... A. L. Girard
Binder. Temporary..... L. R. Dickerson
Binder. Temporary..... G. H. Gresham
Binding pads or tablets. Machine for..... C. F. Taylor
Blank feeding apparatus. Automatic..... J. H. McElroy
Blowing engine..... A. T. Keller
Boat. Portable..... J. Rosenberg
Boat supporting tackle attachment..... W. T. Oliver
Bolster. Body..... J. V. McAdam
Bolster roll..... 2 pats..... S. Van Duzer
Bolt clipper..... H. K. Porter
Bonnet..... M. Hancock
Book and paper rack..... I. Fisher
Book or pad holder Sales..... W. F. Beck
Bookcase or display rack..... R. H. Lindsay et al
Bottle carrier. Milkman's..... O. Ziegengest
Bottle closure..... C. E. Duck
Bottle closure..... H. Coale
Bottle packing box or crate..... H. R. Myers
Bottle stopper..... W. L. Bodman
Bottle stopper..... J. Renner
Bottles or other receptacles. Apparatus for filling..... H. L. Hornung
Bottles or similar receptacles. Device for removing caps from milk..... J. H. Humphrey
Box machine. Metal edge..... J. S. Stokes
Brick, &c. Burning..... A. A. Gery
Brush..... D. H. Coles
Brush holder and brush holder support..... L. A. Tirrill
Brush. Horse cleaning..... J. F. Scanlan
Brushing or polishing machine A. C. Johnson
Buckle. Suspender..... H. J. Galsman
Building block and wall..... F. E. Kidder
Building block mold..... J. M. Pettyjohn
Building structure. Composite..... J. Doyle
Burial casket..... S. Kelly
Butter cutter..... P. M. Scanlan
Button working machine..... A. W. Morris
Cable line grip..... H. Ladewig
Calendar stand..... F. A. Weeks
Camera. Reflex..... C. A. Muller
Car coupling..... W. F. Kiesel, jr
Car coupling device..... A. F. Kuhlmann
Car draft rigging. Railway..... S. Otis
Car. Dump..... S. Otis et al
Car. Dumping..... A. Mieden
Car dynamo drive mechanism W. F. Richards
Car fender..... P. Best
Car. Pleasure..... J. D. Walsh
Car seat..... W. M. Norcross
Car starting device A. Wyss-Baumgartner et al
Car step. Extension..... W. B. Bassell
Cars. Foldable bracket for railway..... A. E. Mitchell
Carbureter. Hydrocarbon engine..... J. L. Ash
Card receptacle for duplicate cribbage..... L. C. Williams
Carpet cleaner. Suction..... G. Simpson et al
Casket holding means adjuster for hearse..... J. Z. Miller
Caster lid support..... W. E. Bond
Caster. Ball bearing..... J. W. Self
Casting plant..... J. G. Johnston
Castings. Metal mold for making brass..... F. Haggenjos
Castings. Mold for making brass..... F. Haggenjos
Catch Spring wire..... R. F. Corneil
Chain dog..... J. J. Weaver
Chair ratchet mechanism. Reclining..... O. P. Breithut
Change delivery device..... D. M. Clapp
Check register..... D. W. Thornton
Chimney cap and ventilator..... T. H. Crahan
Churn dasher..... J. R. Merrell
Cigarette making machine. Diamond..... N. Du Brul
Circuit controlling system..... 2 pats..... A. C. Eastwood
Clipper handle Hair..... G. H. Coates
Clock sounding rod..... A. Junghans et al
Clutch and reversing mechanism. Combined..... W. J. Perkins
Cockeye..... G. J. Breitenstein
Coil. Cooling..... J. Kidd et al
Coin controlled machines. Fraud preventive for..... M. Hofheimer
Coin separating machine..... W. W. Broga

Coin separating and packaging machine..... W. W. Broga
Coke discharging apparatus..... J. De Brouwer
Coke oven discharger..... C. Schroeter
Collar..... F. W. Mugford et al
Column clamp..... J. Buffelen
Combustible arrester..... C. D. Hoffman
Composition of matter..... J. P. Crane
Concrete curbing mold..... H. H. Clough
Concrete or like materials. Mixing machine for..... H. D. Conway
Concrete silos or other buildings. Apparatus for constructing circular..... A. E. Hodgert
Concrete tie, &c..... H. H. Clough
Concrete tie mold..... H. H. Clough
Connectioner's table..... G. F. Dickson
Controller..... W. C. Yates
Conveyer..... J. Q. & A. T. Adams
Cooking utensil support..... W. H. Jones
Coop. Poultry..... J. F. Kale
Copper from its ores. Extracting..... G. Gin
Copying or sculpturing machine..... G. Haelbig
Copying plastic objects..... E. Schmid
Cork extractor..... H. W. Noyes
Corrugating machine..... E. A. McMillin
Cot or stretcher. Ambulance..... G. R. Edgley
Cot supporting device. Folding..... H. Eckerson
Cotton picker..... W. Morava
Coupling device..... D. Finlay
Crib. Baby..... F. M. Abrams
Curling irons or the like. Heating device for..... C. A. Rolfe
Current apparatus. Alternating..... V. Poulsen
Current indicating device. Maximum..... M. J. Wohl
Cuspidor..... W. G. Hughes
Cutting machine..... J. B. Gury
Cycle lock..... B. Peducasse
Dagger..... J. J. Mitchell
Dental chairs. Lamp holding bracket for..... J. J. Ryan
Dental plugger..... reissue A. W. Wimmer
Dentifrice holder. Pocket..... C. W. Wilson
Developing apparatus. Daylight..... A. O. & D. Graf
Discharging compound..... K. Reinking et al
Dish washing machine..... Z. S. & C. L. Randleman
Disintegrating apparatus..... A. G. A. Clero
Display apparatus..... A. Symes
Display box for suspensories Folding..... J. E. Lee
Door hanger..... F. W. Miller
Door lock. Temporary..... J. S. Kohrer
Door opener..... E. E. Combs
Dough. Machine for forming rolls from..... A. H. Piper
Draft regulator. Automatic..... A. E. Wikerson
Drilling or reaming channeled bars, angle-irons, &c. Attachment for..... J. J. Nolan
Drum..... W. J. F. Schulz
Drum. Heating..... F. M. Garman
Dumb bell..... A. P. Schmidt
Dust separating apparatus..... H. Duke
Dust spraying machine..... G. C. & C. E. Johnson
Dye and making same. Anthracene..... O. Bally et al
Dyeing apparatus..... O. Kunz
Dyeing machine..... J. A. Willard
Dyeing, &c. Machine for..... S. W. Cramer
Earpiece or acoustic device..... P. C. Green
Easel..... A. R. Cobb
Egg boiler..... H. F. Hall
Electric current collector ring..... H. Knoener
Electric heater..... C. A. Rolfe
Electric switch..... M. Guett
Electric time switch..... M. Danziger
Electrical distribution system..... C. M. Green
Electrical instrument..... J. J. Guegan
Embossing or printing dies. Producing..... J. W. McIndoe
End gate fastening. Wagon..... 2 pats..... H. A. Schermerhorn
Engine..... H. Bolthoff
Engine frame..... P. Miller
Engine igniter. Combustible vapor..... W. J. Perkins
Engine safety appliance..... H. S. Stormer
Engine shafts. Spring motor attachment for..... W. J. Bell
Envelope..... S. Akiyama
Eraser..... H. H. Hall
Exhibitor holder. Sample..... G. P. Schmidt
Explosive engine..... F. L. Perry
Fastening. Satchel..... C. E. Turner et al
Fence fastening device. Wire..... H. Hansberger
Fence gate..... A. L. Weston
Fence machine. Wire..... J. W. Dwiggins
Filters, &c. Automatic controller for..... W. T. McCormick
Fire hose nozzle. Shut off..... M. D. Larkin
Fireplace heater..... A. B. Schofield
Flash light apparatus..... R. E. Morris
Flue header..... J. W. Faessler
Flue beading tool..... J. W. Faessler et al
Flue expander..... J. W. Faessler
Flue expander..... J. W. Faessler et al
Flush attachment plug receptacle H. Hubbell
Folder. Adjustable..... M. J. O'Neill
Formaldehyde sulfoxylate and making same..... M. Bazlen et al
Friction brake..... H. C. Marmon
Fruit jar..... G. H. Rieke
Furnace fire pot reducing attachment..... C. M. Stilphen
Furnace for limekilns or other structures..... J. D. Owens
Furniture fastening device. Knockdown..... F. B. Williams
Furniture fastening. Knockdown..... F. B. Williams
Game piece..... M. Mandelbaum
Garment gage and marker..... G. W. & M. J. Sensbach
Garment supporter..... 2 pats..... M. J. Penn
Gas burner for illuminating purposes..... M. L. Keiser
Gas burner..... F. H. Crawford
Gas burning furnace. Producer W. L. Harder
Gas engine..... V. R. Browning
Gas engine. Rotary..... F. X. Atzberger
Gas generating apparatus..... W. H. Brooks
Gas generator. Acetylene..... M. F. McNelly
Gas producer..... E. Korting
Gas producer..... W. Viggers et al
Gas producer. Water seal..... C. Ellis
Gas purifier..... E. A. Uehling
Gases. Apparatus for purifying blast furnace..... W. Schwarz
Gearing..... A. Scrivenor

Gearing..... E. W. Moore
Gearing. Motor..... G. Botkin
Germicide. Solar..... I. A. Cain
Glass articles in molds. Forming E. H. Jewett
Glass blower's implement..... C. E. McManus
Glass mold..... H. Curran
Gluing device..... F. Harrington
Governor..... J. L. Dormon
Grain cleaner..... J. T. Leonard
Grain riddle..... W. H. Emerson
Grate. Portable..... M. A. Palmer
Grinding or milling machine..... J. M. Olsson
Gymnasium apparatus support A. J. Thornley
Halter..... F. P. Morrison
Harness..... 2 pats..... R. Weeks
Hat brim curling machine..... W. W. Keys et al
Hay press..... F. R. Greene
Heat generator..... J. G. O'Kelly
Heating apparatus..... J. Demarest
Hinge..... F. L. Hawkins
Hinge. Lock..... R. W. Snowdon
Hoist. Electric..... P. J. Darlington
Holdback..... C. W. Collyer
Hook and eye mount..... E. L. Bronson
Horseshoe calks. Grinding mechanism for sharpening..... G. A. Russell
Hose connection for cars..... H. A. Wise
Hose pipe coupling..... J. Scholz
Hot air furnace..... J. Smith
Hydraulic elevator..... C. E. Oschger
Hydrocarbon furnace..... 2 pats G. L. Bourne
Ice or ice cream cartridge. Water..... S. Lustig
Igniter..... J. Kellerman
Indexing device. Card..... L. C. Walker
Indicator..... G. G. Brown
Insect gathering machine..... J. H. Fogle
Jupset support..... T. Holland
Insulator..... B. B. Moss
Jar closure..... E. C. Hill
Key operated machines. Cushion cap for..... G. W. Munson
Kiln for coking peat or similar material..... M. Ziegler
Kitchen utensil..... H. Spaeth
Kneading machine..... J. Dieschburg
Knife handle matching machine..... E. Primrose
Knitting machine needle cap A. G. Wilson et al
Knob attachment. Door..... A. F. A. King
Lace fastener..... J. B. Hall
Lacing hook..... F. H. Rees
Ladder and ironing board. Combined step..... L. H. Tucker et al
Lamp attachment..... S. Ankel
Lamp burner..... R. Black
Lamp cooling device. Electric..... R. Kuch
Lamp yoke. Arc..... C. E. Hartman
Lamps or bulbs. Method of and apparatus for finishing electric..... G. P. McDonnell
Lathe..... P. Krepp
Leak repairing apparatus..... R. M. Kellogg
Lemon juice extractor..... A. Groundman
Lifting jack..... N. Weiler
Lifting jack..... C. T. Arnold
Lightning arrester..... T. J. Johnston
Lime light mechanism..... A. C. Roebuck
Limit gage..... A. A. Bailey
Liquid cooling or evaporating apparatus..... J. F. Grace
Liquid dispensing means..... G. K. Cooke
Liquid separator. Centrifugal E. C. Pawley et al
Lixiviating apparatus..... A. Hinze
Loom picker staff and sweep stick connection..... E. Crinon
Loom shuttle..... S. A. Dudley
Loom shuttle..... J. F. Hartman
Loom shuttle and filling carrier therefor..... O. Benson
Loom shuttle changing mechanism O. Cosserrat
Loom. Weft replenishing..... H. Wyman
Lubricants. Apparatus for the examination of liquid..... K. Wilkens
Lubricator..... F. Bain
Lung tester and toy..... H. G. Cady
Mailing card..... W. W. W. Arthur
Massage apparatus..... L. King
Massage instrument..... H. A. Church
Match box filling..... reissue A. Paulson
Mattress and accessories for invalids..... A. B. Dugan
Measuring attachment..... E. C. Phillips et al
Microtelephone..... K. Hoffinger
Mine door. Automatic..... O. W. Lundholm
Mirror, &c., frame..... R. Liebmann
Molding machine..... W. von Helms
Molding machine..... T. W. Faus
Mortising machine..... O. C. Wyson
Motor controlling system..... A. C. Eastwood
Motor or dynamo speed reducing device..... J. G. O'Kelly
Mower. Lawn..... R. L. Teal
Musical instrument..... J. A. Weser
Musical instrument controllers. Delivery roll or spool for..... E. G. Clark
Napkin holder..... S. Van Duzer
Nut and bolt lock..... F. M. Black
Nut. Hose coupling..... W. C. C. Miller
Nut lock..... W. Pariso
Nut lock..... S. L. Thrift et al
Nut lock..... J. E. Geisel
Nut sealer. Screw..... F. Van Thiel
Odometer..... J. D. Roberts
Oil bleaching apparatus..... C. L. Weiberg
Oils, grease, &c., from seeds, wool, &c. Extracting..... J. McMahon
Ore separator. Electromagnetic E. Langguth
Oven. Electric..... L. E. Custer
Package fastener and carrier..... B. Kux
Package handling device..... W. R. Dennis
Packing. Metallic..... A. Stems
Packing. Metallic..... C. E. Bowen
Packing ring..... J. J. McDonald
Packing rings for pistons. Grinder for..... W. Chambers
Paging machine..... G. F. McAdams
Paint spraying device..... H. Mikorey
Paper boxes. Making..... J. Bergoff
Paper machine suction roll B. D. Porter et al
Paste jar..... J. E. Swoyer et al
Pea grader..... E. G. Albaugh
Pen. Fountain..... J. Fox
Pen. Fountain..... J. G. Marshall
Pendulum securing device..... A. M. Lane
Permutation lock..... S. H. McVitty
Phonograph..... F. Myers
Physician's adjustable chair V. A. Fagerstrom
Piano..... J. A. Weser
Pianoforte keyboard mirror..... B. B. Thomas
Pipe mold forming apparatus..... J. K. Dimmick
Pipe wrench..... W. W. Swengel
Pipes. Repairing..... R. M. Kellogg

Planer head, Wood..... G. H. Rice
 Pliers, Differential..... J. L. Knight
 Plow, Rotary disk..... G. Spalding
 Pole hole cutter..... J. J. Nolan
 Preserved fruit product..... D. F. Sherman
 Preserving fruit..... D. F. Sherman
 Preserving jar or vessel..... G. Staunton
 Printer's cabinet..... J. E. Goodrich
 Printing and numbering machine, Bag..... J. Rodriguez y Fonoll
 Printing apparatus..... L. M. Todd
 Printing attachment for paper rolls..... J. D. Donovan
 Printing press delivery mechanism..... 2 pats. W. Scott
 Printing press fountain lock..... H. Nathan
 Printing press feed gage..... E. L. Megill
 Propeller, Feathering screw..... E. Hill
 Protractor..... J. Murdock et al
 Pulp board drying apparatus..... W. R. Hope
 Pulp, paper, or similar material, Machine for finishing cylinders or tubes of..... J. B. Ladd
 Pump..... J. Peterson
 Pump..... D. Strickler
 Pump..... A. F. Helsel
 Pumping apparatus..... W. W. Belknap
 Punching machine..... G. B. Chapman
 Rail clamping device..... R. D. Mayo
 Rails, Anticreeping device for..... F. Schmetz
 Railway..... G. A. Le Fevre
 Railway bed..... G. M. James
 Railway, Elevated..... J. Derx
 Railway frog..... V. G. W. Whittemore
 Railway joint..... F. P. Brown
 Railway road bed..... J. L. Silsbee
 Railway safety device..... W. H. Cling
 Railway switch, Electrically..... C. Voss
 Railway switch, Electrically..... B. S. Wakeman
 Railway switch, lock and semaphore..... G. W. Gerlach
 Railway tie..... H. K. I. Manger
 Railway tie,..... E. F. Walsh
 Railway tie plate and means for securing a rail thereto..... H. H. Clough
 Railway train signal..... G. Kanitz
 Railway trip shoe..... C. M. Hurst
 Railway yard..... G. H. Kimball
 Razor, Safety..... E. J. Bell
 Razor strop stretcher..... J. A. Raabe
 Relay..... H. B. Taylor
 Rheostat..... W. C. Yates et al
 Rheostat, Multiple switch..... F. Mackintosh
 Ribbon clasp..... S. E. Parrish
 Rifle cleaner..... G. A. Sachs
 Rifles, Means for indicating the line of fire of..... D. A. Henkes
 Rock drill, Hand..... C. F. Paul, Jr.
 Rocking horse..... E. Y. Harrison
 Roof framing chart..... E. E. White
 Rotary engine..... L. A. Miley
 Rotary engine..... P. A. Nipstad et al
 Rotary engine..... M. J. Hewlett
 Rotary explosive engine..... H. E. B. Blomgren
 Rotary steam engine..... H. Noah
 Router..... F. Hesley
 Saddle tree..... J. E. L. Crawford
 Safe..... T. Scott
 Safe or vault..... W. Brinton et al
 Safe or vault..... H. D. Hibbard
 Safe or vault..... W. Brinton
 Safe or vault..... H. D. Hibbard
 Safe or vault door automatics, Dogging means for..... G. Gesswein
 Safe or vault doors, Automatic locking means for..... W. Brinton
 Safe or vault, Rotary door..... W. Brinton
 Safe, Rotary door..... H. D. Hibbard et al
 Safe, Rotary door..... S. L. Smith
 Safes or vaults, Bolting mechanism for rotary door..... W. Brinton
 Saline solutions, Electrolytic decomposition of..... A. B. Larchar
 Sand, Reusing molding..... W. J. Patterson et al
 Sash holder..... L. O. Hacker et al
 Sash operating device, Window..... C. M. Colkoun
 Sausage stuffer and press..... M. F. Wenrich
 Saw table cutting gage..... C. von Culin
 Saw mill set works, Gage and stop mechanism for..... W. H. Trout
 Scaffolding bracket..... G. Bosenberger
 Scale, Computing..... F. C. Osborne
 Scale, Weighing..... C. W. McKee
 Seal Bottle..... E. Burkiss
 Sealing bottles or similar articles, Closure for..... F. B. Thatcher
 Sealing cap..... K. C. Gillette
 Sealing cap, Bottle..... H. Coale et al
 Service meter..... F. R. McBERTY et al
 Sewing machine, Carpet..... F. H. Hodgins
 Sewing machine, Chain stitch..... H. C. Fischer
 Sewing machine double presser foot attachment..... H. A. Nusbaum
 Sewing machine ruffler..... A. Sandmeyer
 Shade holder..... H. Hubbell
 Shade locking device..... H. Hubbell
 Shears..... J. Storsberg
 Sheet controlling means..... A. W. Weseman
 Sheet delivery mechanism..... J. Nemes
 Sheet metal working..... M. Lachman
 Ships, Mechanism for coal bunkering..... J. Campbell
 Shoe..... G. F. Rapp
 Shoe polishing machine..... F. E. Marshall
 Signaling system, Automatic block..... H. B. Taylor
 Signaling system, Electric..... H. B. Taylor
 Signaling system, Electrical..... C. E. Fredericksen
 Size Manufacturing..... W. Moler-Holtkamp
 Skip cars or the like, Guide for..... R. Schneider
 Sleigh..... C. R. Knapp
 Smoking pipe..... G. Campbell
 Snap hook..... J. C. Kortick
 Snap switch, Rotary..... M. Guett
 Sound modifier..... C. L. Hibbard
 Spark apparatus, Jump..... H. C. Mueller
 Stamp affixing machine..... S. Farmer
 Stamping device, Automatic time..... R. Rowley
 Steam boiler..... T. Barrow
 Steam superheater..... L. Metesser
 Stencil..... A. Jahn
 Sterilizer..... J. S. Forbes
 Sterilizing cabinet..... J. A. Henning
 Stocking supporter..... C. W. Stimson
 Stoker, Automatic..... G. Atwell
 Stop motion, Drawing frame..... J. Manlon
 Stove, Gas..... T. C. Edwards

Strainer, Milk or other liquid..... A. J. Under
 Stuffing box..... R. L. Mossman
 Sugar machine..... O. B. Barth
 Sulfuric anhydride, Catalytic apparatus for making..... M. Schroeder
 Swim training apparatus..... F. Faber
 Switch throwing device..... W. J. Ward
 Syringe..... J. B. Sapp
 Table lock, Extension..... C. W. Munz
 Talking machine..... G. A. Manwaring
 Tamping machine..... H. Geisenhoner
 Targets, Apparatus for indicating the position of moving..... J. F. Meigs et al
 Telegraph pole cross arm brace..... J. H. Cook
 Telephone service meter..... F. R. McDerty et al
 Telephone wire noise and lightning arrester..... A. Stiles
 Thermal cut-out or circuit changer..... C. A. Brown
 Tie and rail fastener..... L. S. Mellinger
 Timber, Device for preventing the splitting of..... J. Fleisher
 Tire..... R. Healy
 Tire antiskidding attachment, Pneumatic..... W. J. Smith
 Tire, Elastic vehicle..... A. T. Collier
 Tire, Pneumatic..... E. C. Teuscher
 Tire tightener..... T. J. Mann
 Tire, Vehicle..... W. W. Clark
 Tires, Automatic pump for rotating..... A. L. O'son
 Tobacco pipe..... B. Schibler, Jr.
 Tool, Multiple..... W. L. Borate
 Toy bureau..... A. D. Converse
 Trace eye protector..... J. F. Welty
 Tramway, Portable overhead..... W. Heffron
 Trolley..... D. C. Evans et al
 Trolley base..... P. Best
 Trolley pole, Automatic..... A. W. Morgan
 Trolley wheel and guard therefor..... F. Koenig
 Trousers creaser..... O. Bernard
 Truck..... G. A. Watts
 Truck bolster, Car..... G. G. Floyd
 Tube cleaner..... A. Lemke
 Tubing jar..... J. T. Callanan
 Tumbler grinding machine..... W. F. Altenbaugh
 Tunnel kiln, Continuous..... A. A. Gery
 Tunnels or shafts, Apparatus for manufacturing segments for use in the construction of..... L. Treuheit
 Turbine, Steam..... E. K. Purvis
 Twyer for forges..... J. Christian et al
 Twyer iron..... S. B. Peterson et al
 Typewriter interchangeable carriage..... J. J. Hannahs et al
 Umbrella, Folding..... L. N. De Larranaga
 Umbrella, Folding..... C. J. Follmer
 Umbrella frame..... D. H. Ruth
 Underreamer..... R. S. Futhey
 Upholstery spring knockdown support..... G. E. Bigelow
 Vacuum tube..... H. V. Wagner
 Valve..... H. J. Davis et al
 Valve, Electrically operated hydraulic..... C. Engberg
 Valve, Combined air check and release..... E. F. Osborne
 Valve for pumping engines, compressors, air-pumps, or the like, Spring weighted plate..... F. Neuhaus
 Valve gear..... W. E. Symonds
 Valve gear, Locomotive..... H. Lentz
 Valve holding device..... C. O. Cole
 Valve, Hydraulic..... C. E. Lewis et al
 Valve, Reverse..... P. W. Frank
 Valve, Rotary..... G. R. Elliott
 Vapor burner and heater..... L. L. Smith
 Vault cover, &c..... T. Scott
 Vehicle..... J. T. Hovis
 Vehicle..... A. Persich
 Vehicle attachment..... O. A. Jones
 Vehicle frames or bodies, Means for overcoming the transmission of concussion to..... C. Stefan
 Vehicle running gear..... M. J. Reicherts
 Vehicle spring, Combination coiled..... C. E. M. Champ
 Vehicles, Steering mechanism for motor propelled..... L. J. Phelps
 Veneer slicer..... L. Koss
 Ventilating device..... R. Taylor
 Ventilator..... R. Taylor
 Vibrator..... W. E. O'Reilly
 Vibrator..... W. Cox
 Voting machine counter..... C. Christensen
 Wall bracket..... F. W. Chickering
 Wall packer..... J. T. Callanan
 Watch movements in their cases, Device for fixing..... A. Pfister
 Watch, Stop..... W. E. Porter
 Water closet..... A. Clolfi
 Water cooler, Compartment..... A. Major
 Water heater..... R. Smith
 Water heater, Electric..... A. D. Wright et al
 Watering tank heater..... Stock T. O. Thorbus
 Waterproofing composition..... L. P. Brown
 Wave motor..... J. L. Ariztia
 Weighing apparatus..... T. R. Weyant
 Weighing machine..... L. W. Gibbons
 Wells, Treating oil and gas..... F. Gardner
 Wheel..... J. I. Maguire
 Wheel..... D. A. Moore
 Wheel guard..... J. E. Baker
 Wheel rim clamp..... W. L. Riiss
 Winding machine lump or slub catcher, Yarn..... W. S. Mill
 Wire nail..... C. J. Carroll
 Wire working implement..... J. R. Payne
 Woodworking machine..... G. Goodjohn
 Work bench..... G. F. Walker
 Woven fabric..... H. D. Hewitt
 Wrench..... E. Kritzer
 Wrench..... J. T. Williams
 Wrench..... A. Shepard
 Wrench..... H. B. Bouser
 Wrench..... L. G. Heal

Window Glass by Machinery.

A mining engineer of Belgium has invented a machine for manufacturing window glass by machinery, which promises to be of great utility. The apparatus turns out continuously sheets of glass 40 inches wide, of any desired length and of uniform thickness, varying from one-fifteenth to five sixteenths of an inch. This glass can be obtained as rough glass for making extra thin glass, as horticultural glass, and as window glass for certain export markets.

The machine is described as a box of fire-brick material floating on a "springing fountain" of glass. In the bottom of this box is a slit called the stretcher, and through this stretcher a sheet of plate glass is introduced into the molten mass. The molten glass adheres to this plate. When the plate is pulled up vertically, it is followed by a mass of melted material that wells up without effort. Once started, the molten glass continues to flow out in a sheet without the plate being dipped in the stretcher again.

The "springing fountain" in which the stretcher floats is a kind of pit, the walls of which are heated by the heat of the glass, and on the top of the pit is an apparatus for dragging the glass up and for annealing. This apparatus is simply a chimney to draw off the heat, in which there are about 17 pairs of rollers. The glass is lifted through these rollers by adhesion, and by the time it reaches the top of the chimney, it is sufficiently cool to be cut with a diamond into desired lengths while still attached to the machine.

The operation of annealing—depriving glass of brittleness by allowing it to cool slowly—is at once difficult and capricious. The great importance of annealing in all branches of window glass making lay in the fact that the plastic glass had to be manipulated by tools which were colder than the glass. It was and is by the older method a very delicate operation. The new machine does away with all this. Annealing is no more a necessity. The glass coming out from the "delivery box" cools and congeals gradually, and at a certain point has lost its heat. It is then that it comes in contact with the first lifting rollers, which are the same temperature as the glass itself. Hence the glass appears at the top of the chimney perfectly flat, and possesses unequaled brightness on both sides.

As the new machine is particularly recommended for its simplicity and for the saving of time and material which it effects, it will no doubt become of great importance to glass manufacturers.

NEW BOOKS.

BOILER ROOM CHART.

By GEO. L. FOWLER.

SIZE 14x28 INCHES.

Price, Twenty-Five Cents.

An educational chart, showing in isometric perspective, the mechanisms belonging in a modern boiler room. The equipment consists of water tube boilers, ordinary grates and mechanical stokers, feed water heaters and pumps. The various parts of the appliances are shown broken or removed so that the internal construction is fully illustrated. Each part is given a reference number and these with the corresponding name is given in a glossary printed at the sides. The chart, therefore, serves as a dictionary of the boiler room, the names of more than two hundred parts being given on the list.

It is educational in that, with it, the student will be able to learn of the construction and arrangement of the best type of boiler plant, and examine into the relations of the various parts, while the glossary gives the name of each piece and part that is shown.

This latter is so arranged that the names of any part can be readily found, or the name being given—the part and its functions are readily determined.

The NORMAN W. HENLEY PUB. CO., Publishers,
 132 Nassau Street, New York, U. S. A.

THE SECRET OF THE CIRCLE AND THE SQUARE.

By J. C. WILLMON.

It is the intention of the author to demonstrate the possibility of constructing a straight line equal to any given arc of a circle, and through this problem to construct a square equal in area to any circle and a circle equal in area to any square, with solutions of kindred geometrical problems. Many other geometrical problems are possible through these demonstrations.

To make the text clear, the book contains numerous illustrations, and throws much light on the old problem of how to square the circle.

McBRIDE PRESS, LOS ANGELES, CALIFORNIA.

PATENTS

Send Your Business Direct to Washington . . .
 . . . Saves Time and Insures Better Service.

Caveats,
 Trade Marks,
 Copyrights
 and
 Designs.

My office is close to U. S. Patent Office. FREE report as to patentability made. Personal attention given—TWENTY-FOUR YEARS PRACTICE. Book "How to Obtain Patents," etc., sent free. Patents procured through E. G. Siggers receive special notice, without charge, in the—

INVENTIVE AGE

Illustrated Monthly—Seventeenth Year.
 Terms, \$1.00 a Year.

E. G. SIGGERS, 918 F STREET, N. W.,
 WASHINGTON, D. C.

FREE! Send us 2 cents to pay for postage and we will mail you a valuable copyrighted book, "How to obtain Patent, Caveat, Trade-Mark and Copyright Protection, with Decisions in Leading Patent Cases" entirely free of charge. Address:
 INVENTIVE AGE PUBLISHING COMPANY,
 (Dept. P.) WASHINGTON, D. C.

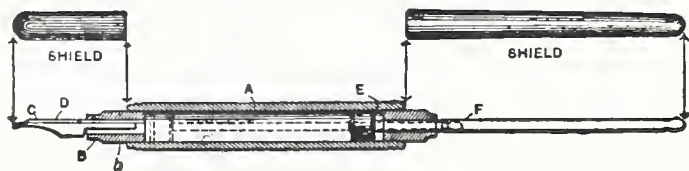
Look At Our Unprecedented Premium Offers !
To Old And New Subscribers Alike.

The "POST"

SELF-FILLING AND CLEANING FOUNTAIN PEN.

No Filler. No Soiled Fingers. No Lost Time. Simple and Perfect.

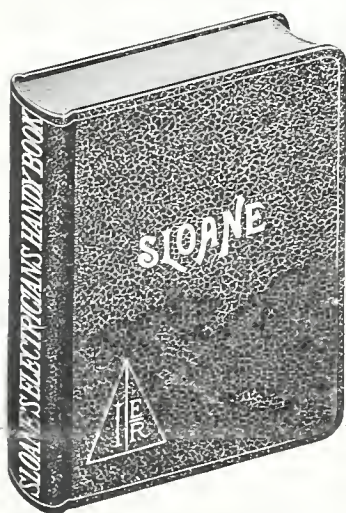
THIS IS ITS CONSTRUCTION.



Price \$2.00.

Including one year's subscription to

The INVENTIVE AGE AND PATENT INDEX



ELECTRICIAN'S HANDY BOOK

By T. O'CONOR SLOANE,
A.M., E.M., PH.D.

Handsomely Bound in Red Leather,
with Titles and Edges in Gold.
Pocket Book Style.

800 Pages. 500 Illustrations.
Price \$3 50.

Including one year's subscription to

The INVENTIVE AGE & PATENT INDEX.

Appleton's Cyclopedia of Applied Mechanics

Edited by PARK BENJAMIN, Ph.D., LL.B.
A Magnificent Set in Three Volumes Fully Illustrated.



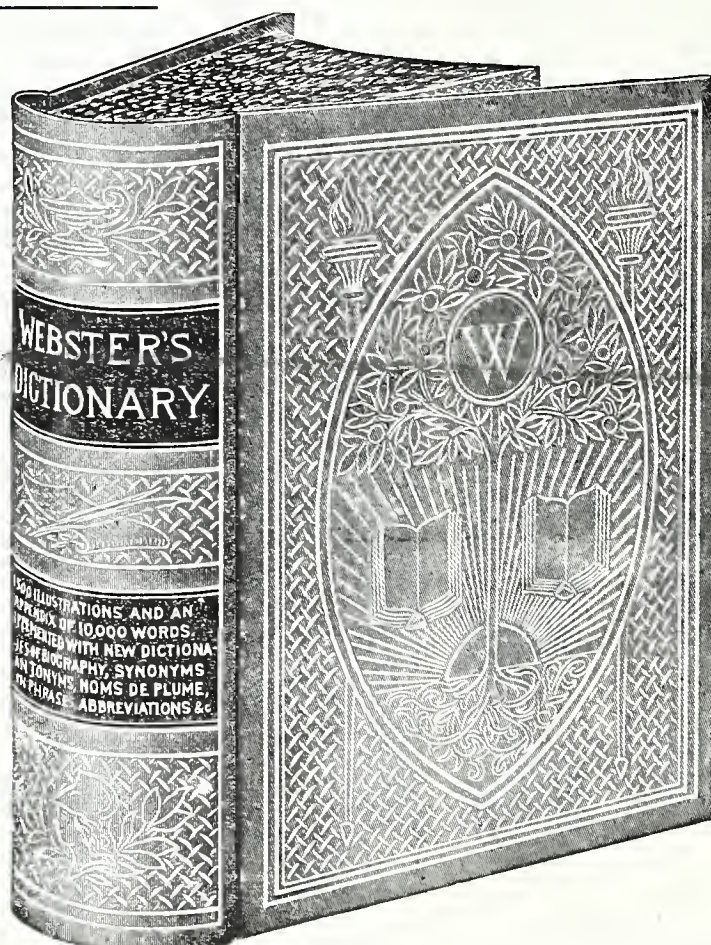
EACH VOLUME 10 x 7 x 2 INCHES WEIGHT 20 LBS.

SPECIAL PRICE \$12.

Including one year's subscription to The Inventive
Age & Patent Index.

SEND FOR OUR FREE CATALOGUE OF BOOKS FOR INVENTORS,
AND MECHANICS.

Address: THE INVENTIVE AGE PUBL'G CO., 918 F St., Washington, D. C.



1540 Pages; 1500 Illustrations; Full Library Sheep
Binding; Dennison's Patent Index; Size, 4 x 9 x 10
Inches; Weight eight pounds.

Price \$2.50

With one year's subscription to
The Inventive Age & Patent Index.

....A....

Complete Electrical Library

By PROF. T. O'CONOR SLOANE.

5 Volumes,

1300 Pages,

Over 450

Illustrations.

A \$7.00
Library for
\$6.00,

Including
one year's
subscription
to

The Inventive Age & Patent Index.



A JOURNAL
OF MANUFACTURING
INDUSTRY

THE Inventive Age

AND SCIENTIFIC PROGRESS.

SEVENTEENTH YEAR. }
No. 8.

WASHINGTON, D. C.—AUGUST, 1905.

} SINGLE COPIES 10 CENTS.
ONE DOLLAR A YEAR.

FOREIGN TYPES OF MOTOR VEHICLES.

WE present herewith an illustration of the type of automobile most commonly seen in England for public purposes—the private carriages used there conforming closely to the lines to which eyes in America are accustomed. The difference that will at once strike the observer is the “double deck” arrangement, with which all the tramcars and omnibuses are provided. It is necessary in London, with its congested population that depends largely for transit upon surface traffic, to provide some such arrangement for transporting a greater number of passengers than can find place within an ordinary car.



The system has many advantages, especially in warm weather, and it is strange that it has never been adopted in the United States. One of the reasons commonly assigned is the supposed confusion and delay caused on the platforms by passengers boarding or alighting from the car, part of whom enter or emerge from the interior and part from the upper deck. This objection, however, has been greatly exaggerated, and in fact, an investigation of this question made by a representative of the Merchants' Association of New York showed that it is untenable. It was proved by actual timing of double deck cars that the average time consumed per passenger in getting on and off was from 1 to 9 seconds, while the length of stop per passenger in American cities averaged from 2 to 8 seconds. This longer delay is explained by the difficulty passengers have in reaching the platform in the crowded cars common in our cities, the time consumed more than balancing any congestion from the meeting of two streams of passengers on the platforms of the double deckers.

The second objection to the double decker is that it is not adapted to the extremes of climate in the United States. This has been overcome, to an extent, by covering the upper deck with awnings, or with more permanent covers of combined wood and glass. In the latter case, the roof is arranged to coil up like a roller top desk, either in sections or altogether. An illustration of a car covered in this manner is given herewith.

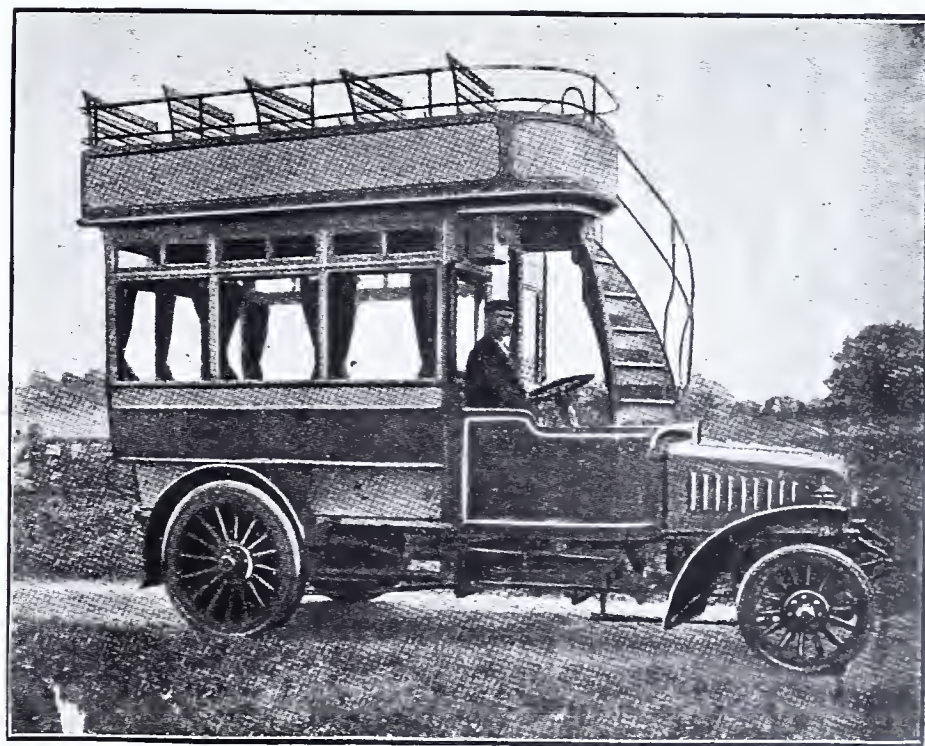
One of the chief merits of the double deck car is that it offers a smoking compartment for men with every car. Very few women climb the stairs, although they are easy of ascent and descent, and accidents from falling are so rare as to make them a negligible quantity. The “deck” is especially popular with men, who are permitted to smoke there in comfort, instead of being obliged

to cling on the back platform or to crowd into the restricted space assigned to that purpose in open cars in America. Another merit of this construction is that it may be used as an observation car, the pleasure of riding so far above the street, with an extended outlook, being great. Guide books to London, in fact, recommend this as the best method of seeing the city.

London has more omnibuses than any other city in the world—it is the city of 'buses. It is estimated that there are at least 2,500 omnibuses in the metropolis, each drawn by two or three horses, and the movement now on foot, to replace these with automobiles, is extensive in its scope. It is thought that from 1,500 to 2,000 autobuses will be necessary to take the place of the old vehicles. The General Omnibus Company, the largest of the transit associations, has been pondering the matter for years, with characteristic British conservatism.

The automobile illustrated is constructed to carry 34 passengers—16 inside and 18 outside. Interesting points in its design are the operation of the valves from an overhead lay shaft, and the employment of a volute spring at the rear end of the distance rod to absorb the driving shocks. Each motorbus, it is estimated, will carry 1000 passengers per day, and make a journey of 9½ miles in less than 40 minutes, including all stops. Acetylene lamps, electric bells, and racks for light articles are provided for the convenience of the passengers.

Motor fire engines are in use in the principal English cities, and London claims to have the largest and most powerful one yet built. It is 50 horsepower, and is capable of throwing 500 gallons of water a minute to a height of 150 feet. It is propelled by a steam water tube boiler situated between the



rear wheels, and is heated by a petroleum burner of new design, in which the fuel is sprayed into the furnace. This gives a very hot fire, which can be regulated with nicety. In front of the boiler is the engine, with a pair of inverted cylinders driving two direct and double acting pumps. The pumps can be disconnected from the engines in a few seconds, and by throwing into gear a pinion wheel, the motor drives a countershaft, from which the power is trans-

mitted by chains to the wheels. Thus the same motor takes the vehicle to the fire and on arrival pumps the water. The engine carries enough petroleum for a 40-mile journey, and as a fresh supply of fuel can always be obtained at the scene of a fire, the machine can keep going for a week if necessary. A proof of its capability was recently shown when it was called upon to ascend a hill so steep that the old type of fire engine has had to go up it at a walk, with the men on foot. The motor engine went up with a full load of 8 men, hose and appliances at the rate of 15 miles an hour, and gathered speed on the steepest part of the climb. Only a minute is necessary to get up steam enough for running. A small gas jet is kept burning under the boiler while it is standing in the station so as to maintain the water fairly hot, and this will give sufficient steam to start the petroleum burner at full power, and a good pressure in the boiler quickly follows.

The old time prediction that the railways would seal the fate of the horse was changed so that automobiles were to displace that animal, when these began to be used. The prices for horseflesh have, however, steadily advanced. The fact seems to be that automobiles have created a new school of travel. Many people who use them did not keep horses, and people using them who did keep horses still retain the latter for emergencies. It is more likely that the automobiles will in time affect the railways, in their receipts from passenger fares. This is especially true in England, and other countries are adopting motorbuses as a substitute for short lines of railway. Italy has advertised that the government will grant subsidies for such lines, and the system is being extended in Germany and France.

A new electric carriage which has been constructed by a Paris firm gives promise of creating a revolution in the automobile world. Like all firms interested in the building of motor carriages, the Electromotion Company has always employed, for the transmission of power to the wheels, motors of high speed, with 800 to 1000 revolutions a minute, these acting with the intermediary of chains and pinions or pinions and gearing. This method was adopted to avoid the weight of the electric motors. The drawbacks to this system are as follows: The pinions, chains, and gearing absorb no small amount of force, this loss beginning at 25 per cent and increasing with wear. The battery also progressively weakens. Then the gearing, pinions, or chains have to be changed periodically, causing expense and the laying up of the carriage for repairs. The use of pinions, chains, and gearing, however carefully the vehicle may have been constructed, always produces a grinding noise, which increases with wear, and this grinding detracts from the charm of electric carriage riding. Again the overheating of the motors limits their action. Thus in existing systems high-power batteries, which render the carriage heavy, are absolutely necessary.

The new method of transmission has

been tried over and over again, but this is the first time that the inventors' dreams have been realized, and so satisfied is the company with the perfected invention, that it has obtained patent rights for all countries. The system is simple. The motors and the wheels are one and the same thing, working together, running at the same speed and without any kind of intermediary. The 'live axles' can be placed in front or behind. They receive their motive power direct from the accumulators, and the chains, pinions, and gearings are things of the past. A carriage with live axles can travel 20 to 30 per cent farther than the ordinary carriage, for the reason that it is relieved from lost energy and has no impediments. In a word, weight is reduced, power increased, heating diminished, and absolute silence obtained, while wear and tear are brought to a minimum.

This invention can be applied to any kind of vehicle, although at present the private carriage is receiving all attention. In the trial the new system, although primitively mounted, worked admirably at five speeds, varying between 4½ and 19 miles an hour, and with perfect silence. There was no jar in starting or in changing speed. The general appearance of the carriage is improved, as the motor being removed from under the vehicle the body can be built low.

Cultivating Plants by Electricity.

Eugene Pilsoudsky and Eugene Ragozine, of St. Petersburg, Russia, have patented in this country a method of cultivating plants by electricity.

A large number of attempts have been made to augment the productivity of the earth and to accelerate the growth of plants by the use of electricity. These experiments have not, as a rule, proved successful, owing largely to the uncertainty of the effects produced, and the lack of knowledge upon the part of the experimenters as to the real action of the electricity. Prior experiments have usually employed galvanic currents set up between electrodes of dissimilar metals, with all the positive electrodes at one side of the field and the negative at the other side. The present invention consists in a method of cultivating plants by atmospheric electricity, and a long series of experiments conducted by the inventors have enabled them to formulate certain rules by following which successful results can be obtained with practical certainty. The process consists in subjecting adjacent parallel sections of the earth to be treated to the action of galvanic currents flowing in opposite directions between burial plates of dissimilar metals connected by overhead conductors, and simultaneously setting up in the circuits formed by these conductors, plates and earth sections, currents induced by atmospheric electricity passing through parallel overhead conductors adapted to collect such electricity.

CACTUS AS FOOD.

THERE are few products that would seem less adapted to serve as food than the thorny cactus that flourishes in certain southwestern regions of the United States. The ordinary observer would as soon expect to gather grapes of thorns or figs of thistles, as to find this forbidding plant utilized for animal consumption. And yet, when properly handled, the cactus has a high value as forage for cattle. In the arid regions of Texas and southern California, the rancher is periodically confronted with a condition of drought that endangers his herds, and is forced either to buy expensive feed, or to sell at ruinous prices in order to save his stock from starvation. Enormous stretches of land that are considered deserts have a considerable growth of cactus plants, and the utilization of these waste places is of importance, apart from the fact that the growth has undoubtedly saved many herds in famine years. It has been found that the various species of cactus which occur in the semi-arid

In preparing the article for food, the first consideration is how to get rid of the spines. In some sections, these are singed over a brush fire, which will remove the spines from one side of the joints almost immediately. It is then necessary to turn the plants over and singe them on the other side. The use of a gasoline torch is another common practice, and the process consists in passing a hot-blast flame over the surface of the plant, which can be very quickly and easily done. The spines themselves are dry and inflammable. In many species, half of them will burn off by touching a match to them at the lower part of the trunk. The instrument used for this purpose is a modified plumber's torch. One rancher in steaming the cactus for his cattle, he discovered by accident that the spines became innocuous when moistened for some time. He happened to use the plants in the construction of a dam, which soon washed out. Upon repairing the dam, it was found that the spines of those plants which had



FIG. 1.—A TYPE OF CACTUS CUTTER.

portions of the country furnish a feed, which, although low in nutritive value, is inexpensive and will answer admirably as an emergency ration.

The feeding of cactus to stock began in Texas before the civil war, during the drought of the fifties. For many years afterwards, there were expensive freight transportations carried on between San Antonio, Eagle Pass, etc. Most of the haulage was done by oxen, and during the war grain was prohibitive in price, and the cattle could obtain no feed except the meager supplies of the country through which they passed. Prickly pear, or cactus, grew in abundance along the roads, and the teamsters scorched it by burning brush, and then chopped it up with axes, and fed it to the stock. The practice has grown with the years and the development of stock raising, until it is estimated by Texas ranchers that not one half as many cattle could be handled by them, if it were not for the prickly pear.

been kept wet were perfectly harmless. This led him to use a tank and boiler which happened to be on hand, to steam the cactus, and the results were found to be most satisfactory.

Rapid advances have been made in Texas of late years in the matter of pear-handling machinery. By the use of machines now in vogue, cacti may be chopped into such small pieces that the spines are rendered innocuous by the abrasion. Two of the common types are illustrated herewith. Figure 1 shows an apparatus consisting of a solid cast iron wheel, 4 feet in diameter, with two knives arranged at a narrow angle with the radius on one of its faces. Behind each knife, hollowed out of the face of the solid casting, there is a pocket extending the length of the radius. The front face of this wheel is plain, save for those pockets, which receive the chopped pear and carry it out of the machine. These are 1½ inches deep, 22 inches long, and 9 inches wide.

The back of the wheel is made irregular by the projection of the knife pockets, radial thickenings, and a perimeter 2 inches wide, for strengthening the casting.

The knives are bolted on to the face of the wheel over the pockets, and are one half inch in thickness, with a bevel toward the wheel. In revolving, the knives pass a shear plate which is adjustable and bolted into the frame.

The wheel is supported vertically on a horizontal shaft running in boxes supported on a wooden frame. The wheel is operated by a pair of gears with a ratio of $5\frac{1}{2}$ to 1, the shaft of which is squared to receive the knuckle of the horse-power ground rod. The main shaft also has sprockets for the operation of the carrier chain. To it may be further attached a pulley for the adaptation of steam power. When the machine is set up, a short chute is bolted at an acute angle with the face of the vertical wheel, in such a position that it terminates in the same horizontal plane as the axis of the wheel. The pear is forked into the chute, fed against the face of the wheel with its revolving knives, and is cut and mashed into small pieces. The chopped material is carried down in the pockets and dropped into a carrier, operated upon the same principle as the common straw stacker, which carries the chop off into whatever receptacle is provided for it. This is usually the ordinary wagon box, for the chop is hauled directly from the machine to the feeding ground.

Upon the cutting side and opposite the horse-power, a large platform, $3\frac{1}{2}$ feet high, is constructed to reach up to and partially surround the wheel. This is large enough to hold one day's feed of uncut pear, which is thrown onto it from the wagons. From this platform the pear is fed into the chute, which is situated just above it. Under the elevated carrier is constructed a triangular box of about the same capacity as a double wagon box. On the lower end of this is a trap gate, which can be sprung so as to allow the chop to slide into the wagon with no handling.

This type of machine was worked during the drought of 1902, to cut cacti, with the aid of ten men in hauling, etc., for 2,000 head of cattle. Four horses furnished the power.

Another machine of a smaller type is shown in Figure 2. It is constructed throughout of iron, and has a 36 inch revolving wheel, in which three adjustable knives are set at a narrow angle with the radius of the wheel. Behind each knife are set cast iron pieces, which, bolted upon the wheel, make a box $2\frac{1}{2}$ inches deep, opening upon the periphery. The entire wheel is cased in, except the delivery opening, through which the chopped pear is thrown out of the machine. The knives cut against a shear plate, as in the machine first described, and a feed chute is built of boards, in the form of a flat trough, set at an angle of 45 degrees from the face of the wheel, its base being coincident with the horizontal diameter. The pear to be chopped is in this way carried

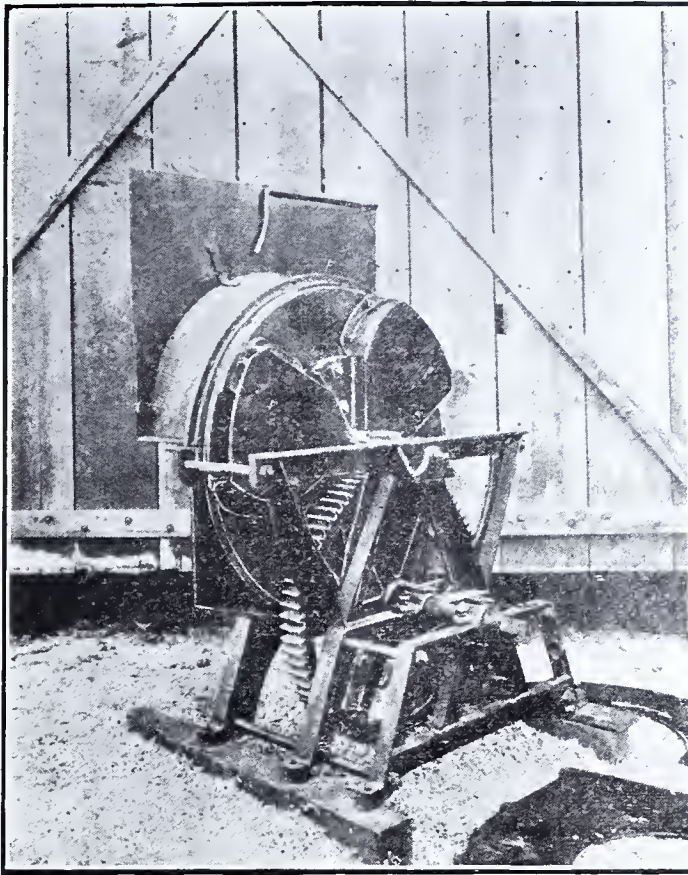


FIG. 2.—ANOTHER TYPE OF CACTUS CUTTER.

into the machine by its own weight for the most part, but owing to its straggling method of growth, its passage into the machine must be facilitated by the use of forks. No carrier is used with this machine, for the centrifugal force of the revolving wheel throws the cut material 30 or 40

It is well understood that cactus has a decided tendency, when fed to milch cows, to increase the flow of milk. Some dairymen feed it regularly even where other feed is accessible. It is also valuable for fattening cattle, and has been used in some places for hogs and sheep. Cattle look as though



FIG. 3.—ONE OF THE COMMON PRICKLY PEARS OF TEXAS IN FULL FRUIT.

feet. While the cactus is passing through the machine, the spines become thoroughly broken up, and being lighter than the pulpy material, are largely winnowed out when the chop passes out of the machine. This is very noticeable when the apparatus is in operation, the stream of broken spines and lighter material being effectually separated a few feet from the machine.

Cattle brought up in sections where the cactus grows do not have to be taught to eat it. They take to the feed very naturally. After a day or two of feeding, the sight of smoke where pear is being burned brings the whole herd to the spot immediately, and they follow the operator closely, grazing the pear to the ground—woody stems and all.

they were bloated after every feed, for such a large quantity is eaten—one or two hundred pounds per day—that it is bound to cause a distention of the stomach; but there appears to be no danger after the animals have become accustomed to it.

The cactus has many uses besides that of forage. Some of the species naturalized in the semi-tropical countries of the Old World form the main article of diet of millions of people during several months of each year. The fruits are so highly prized by the Italians that they are imported into this country for their consumption, and are sold at a price about equal to oranges. Very palatable jellies are manufactured from the fruits, and the Mexicans employ the plant for food in various ways—boiling the

young joints for food, making them into pickles, and pressing out the juices for mixing with whitewash. The soft, pulpy tissues of cacti, being very retentive of moisture, are admirably adapted and extensively used for poultices. Some species yield valuable drugs and dyes, and the peculiar reticulations of the vascular system of other varieties, are taken advantage of in the manufacture of art goods.

Radium as a Life Producer.

English newspapers record some curious and interesting results of experiments with radium at Cambridge University. Some time ago a son of Sir William Crookes showed that the emanations of radium were usually fatal to bacteria exposed to their influence, particularly those encouraged to grow in the broth or jelly of gelatin—the usual medium employed for their cultivation. One, Mr. Butler Burke reversed this process in the Cavendish laboratory at Cambridge. His proceeding is thus described:

He sterilized some of this gelatin food, deprived it of every vestige and sign of life—and there is no reason to doubt that he did it thoroughly—then into it he placed some fragments of radium. If both the gelatin substance and the radium were sterilized, nothing should have happened. But, according to Mr. Burke, in a few days something did happen. Something like tiny growths appeared, which in appearance, when scrutinized under the microscope, were not unlike bacterial growths—that is to say, the radium appeared to have been influential in creating a form of life where there had hitherto been no life.

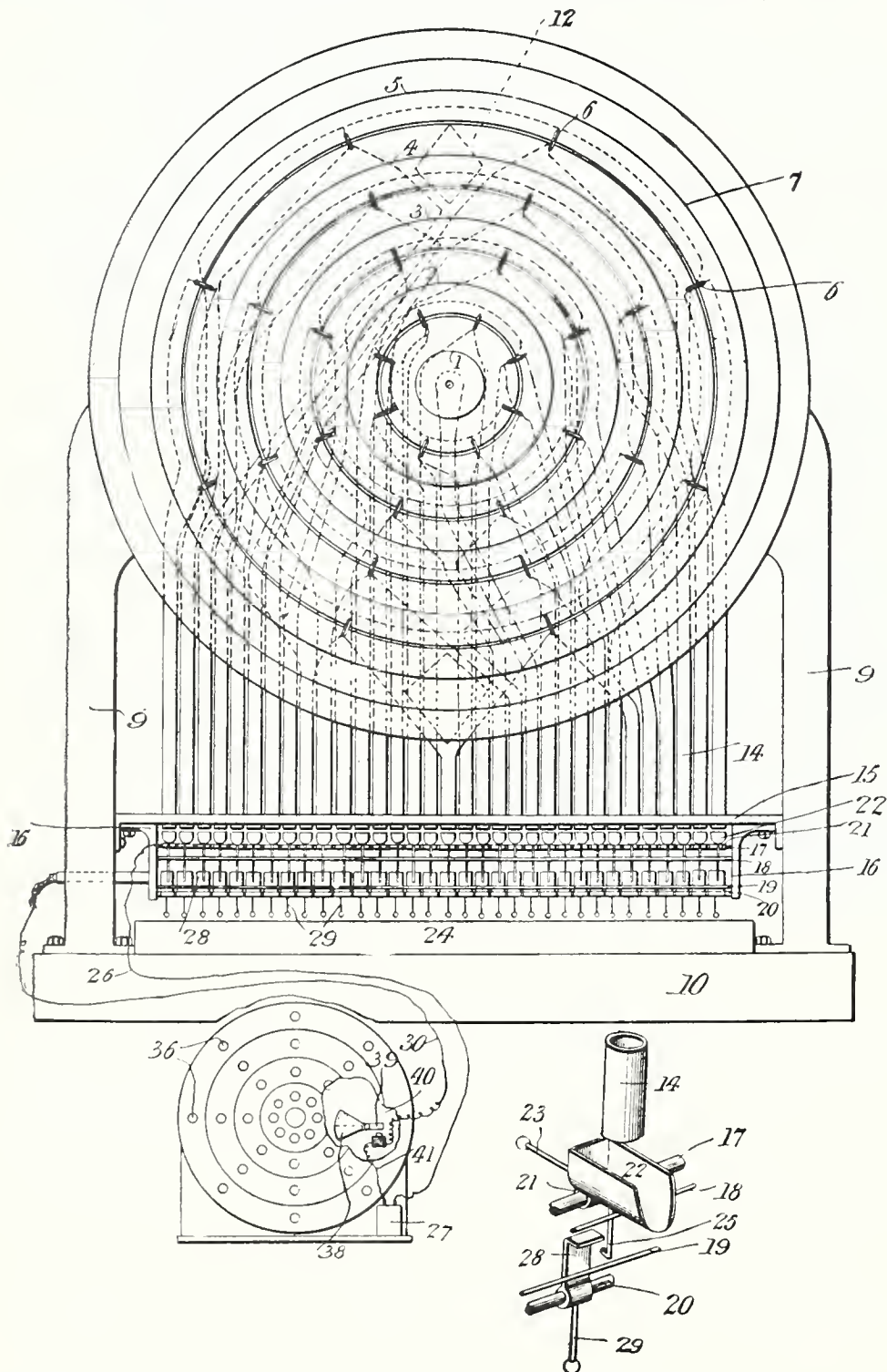
Mr. Burke then made the experiment with greater deliberation and more care to avoid sources of error. He plugged with cotton wool, tubes of gelatin containing radium and tubes of gelatin without radium, and then subjected them, under pressure, to a very high temperature. That, according to theory, ought to have killed any form of life in either tube. It did so in the tubes without radium, but in those which contained radium the gelatin began to show the peculiar growth that usually is characteristic when the gelatin is infected with bacteria capable of growing in it. These bodies were examined by Prof. Sims Woodhead, among others, and though Professor Woodhead has decided that they are not bacteria, they seemed to have some of the characteristics of living things. They seemed to grow, though they do not grow to a size greater than the sixty-thousandth part of an inch. They appear, like cells of living matter, to contain nuclei—but crystals might be mistaken for these things; crystals grow. These small bodies, however, have one characteristic which marks them off definitely from crystals. When they reach their greatest dimension, the sixty-thousandth part of an inch, they split. The subdivision has been photographed. Moreover, when portions of the growth are removed from the influence of the radium and placed in new gelatinous matter, these portions continue to grow. In other words, radium does not appear necessary for the support of the life of these things; it seems to act as the initial force which creates a sufficient change in the arteries or the molecules of the gelatin to set in motion something that has the power of assuming some of the attributes of living things. There may be some fatal flaw in Mr. Burke's precautions against error, but his experiments are deeply interesting, and it does not seem illogical to suppose that since radium is capable of upsetting the atomic constituency of inorganic matter, like metals or glass, and of producing what is called acquired radio-activity in them, it may also be able to disturb the atomic constituency of inorganic matter, and force it to take new forms resembling living forms.

CLEVER NEW PATENTS.

ELECTRIC SELF-REGISTERING TARGET.—PAINT BRUSH.

Electric Self-Registering Target.

A decided novelty is an electric self-registering target, patented by Mr. Theodore F. Oetjen, of Augusta, Ga. The target is adapted for use in rifle-ranges, shooting galleries, and other places, and the principal object is to provide means which will register the points struck by the projectiles, the indicating device being placed at any convenient location and connected by suitably energized circuits to the target. One of the important features of the invention resides in the arrangement of parts, whereby the registering of the indicating mechanism is operated by the weight and not by the impact force of the projectiles; and another feature is the provision of a target in which the circuit-closing means are located at some distance from the face of the target and are thus protected from injury, while the target proper can be formed of metal, and is practically indestructible. In the form of the invention disclosed in the patent, a front target section is provided that is formed of a plurality or spaced concentric rings 1, 2, 3, 4, and 5 with radial bars 6 dividing the spaces between the rings into a plurality of pockets, preferably thirty-three in all. A back plate 8 is secured to this front section, and standards 9 form a part thereof. A cross bar 15 extends between the standards, and a plurality of pipes 14 lead from the cross bar to the back plate, the pipes communicating at their upper ends with the projectile-receiving pockets. A plurality of rods 17, 18, 19 and 20 carried by brackets that depend from the cross bar 15, constitute supports for projectile-receiving trays 22 that are suitably counter-weighted and carry circuit-closing fingers 25. (See the detail view.) A plurality of



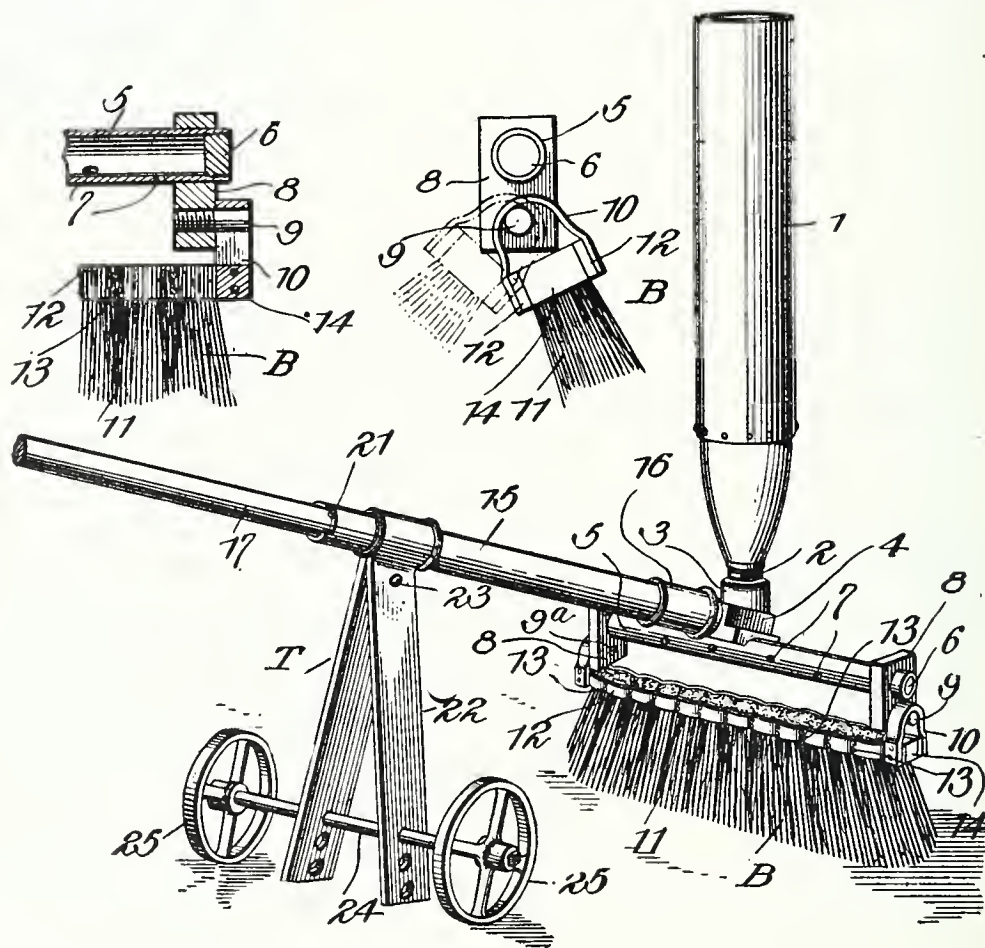
co-operating circuit-closing fingers 28 are pivotally mounted on a third and depending weight-rods 29 are connected thereto. Associated with the circuit closers is an indicator, together with suitable electric connections.

The projectiles employed should be of lead or other soft metal, so as to avoid injury to the target, and when they strike the latter, are guided to

nearest pocket. The projectile thus entrapped falls through one of the pipes 14 into the tray 22 in communication with the receiving-pocket, and the weight of the projectile depresses the tray, forcing the hooked finger 25 to the rear and causing its engagement with the pivoted contact-finger 28, the two being held together partly by the weight 26 and partly by the weight of the projectile until the latter falls into the receptacle 24, after which the counterweight 23 will return the tray to its initial position, and the counterweight 29 will restore the contact-finger 28 to the vertical position. When the two contact-fingers are engaged, a circuit is closed through the proper electro-magnet 40, corresponding to the position of the pocket in which the projectile was received, and the annunciator mechanism is operated to show the exact position on the target struck by the projectile.

Paint Brush.

A brush, which, it is claimed, will rapidly and effectively apply paint or oil to roofs, floors, and similar surfaces has been patented by Mr. Nelson Stow, of Binghamton, N. Y., the object being to provide means for insuring the holding of the brush at a suitable inclination to the surface upon which it operates, both in the forward and rearward strokes of such brush, to provide easily operated means for controlling the flow of the paint or oil, and to employ a suitable support for the brush, which will materially facilitate its use.



A handle is employed, that is supported on a two-wheeled truck, and pivotally suspended from one end of the handle is the brush head B, carried by a delivery tube 5, having openings 7 arranged directly over the head. A reservoir 1 for the material is supported upon the tube and is in communication therewith. The fountain or reservoir 1 will be filled with paint or other liquid which it is desired to apply to a roof or other similar surface, and the handle member 17, having been turned sufficiently to open the valve to the desired extent, the liquid in the reservoir will pass downward into the discharge-pipe 5 and be discharged therefrom through the openings 7. As the liquid passes down from the discharge-pipe to the brush, it will be applied to the surface by drawing the brush backward and forward over the surface.

Owing to the way in which the brush-head is suspended beneath the discharge-pipe, the proper inclination of the brush to the surface upon which the liquid is spread, will be secured automatically by the oscillation of the brush-head on the supporting-screws, the lugs 8 being so proportioned that the oscillatory movement of the brush on the supporting-screws will be limited by the contact of the bars 12 with the under side of said lugs, and when the lugs 8 come in contact with either of the bars 12, the brush will be held at the proper inclination for applying the liquid to the surface. The use of the small truck T insures the proper contact of the bristles of the brush with the surface to be coated, and prevents the bending or unnecessary wear of the bristles which would result if the entire weight of the paint-filled reservoir, the discharge-pipe, and one end of the long handle were allowed to rest upon the bristles of the brush. As the weight of the reservoir and the end of the brush-handle is supported upon the truck, the bristles 14 will merely make sufficient contact with the surface to be coated to insure the proper spreading of the paint or other liquid thereon, and at the completion of each stroke in either direction, the brush will oscillate easily upon its bearings to bring it into position for the return stroke.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

BAKER LEAD MFG. CO. v. NATIONAL LEAD CO.

(Circuit Court, D. New Jersey. February 27, 1905.)

PATENTS—INFRINGEMENT—LEAD TRAPS.

The Robinson patent No. 406,146, for a method of forming the bottoms of lead traps by spinning an end section on a tube or cylinder under pressure or friction sufficient to cause the metal to flow and unite and form a homogeneous, seamless, and complete bottom, was not anticipated, and is valid. Also held infringed.

ALPHONS CUSTODIS CHIMNEY CONST. CO. v. H. R. HEINICKE, Incorporated.

(Circuit Court, S. D. New York. December 20, 1904.)

PATENTS—SUIT FOR INFRINGEMENT—IMPROVEMENT IN CHIMNEYS.

An application for a preliminary injunction against infringement of the Custodis patent, No. 512,504, for a chimney, denied in view of the fact that the patent had not been adjudicated, and that the showing made raised a serious question as to its validity.

DENNISON MFG. CO. v. SCHARF TAG, LABEL & BOX CO.

(Circuit Court of Appeals, Sixth Circuit. February 7, 1905.)

TRADE-MARKS—SERIES OF NUMBERS USED TO DESIGNATE STYLE OF GOODS—UNFAIR COMPETITION.

Series of numbers used by a manufacturer of labels in its catalogues and in connection with its corporate name on the boxes containing its labels, not primarily to indicate origin, but to designate the color, shape, and size of the label, each kind being given a different number, do not in themselves constitute good trade-marks, and such manufacturer is not entitled to an injunction to restrain the use of the same numbers in the same way and for a similar purpose by another in connection with its own name, either on the ground of infringement of trade-mark or of unfair competition, there being no attempt to deceive in dress or style of package, and the labels themselves being such as it is open to any one to make.

ROBINSON v. AMERICAN CAR & FOUNDRY CO.

(Circuit Court of Appeals, Seventh Circuit. January 3, 1905.)

1. EQUITY PLEADING—RESPONSIVENESS OF ANSWER.

A denial in the answer in a suit for infringement of a patent that the patentee was the first inventor of the improvement described in the patent named in the bill, specifying it by number, is sufficient to raise the issue of invention, although the title of the patent as stated in the answer may be technically inaccurate.

2. SAME—REPLICATION.

The replication to an answer in equity cannot be made to perform the office of exceptions.

3. RES JUDICATA—DECREE DISMISSING BILL WITHOUT PREJUDICE.

A suit dismissed without prejudice is not a bar to a second suit, nor conclusive of any issue joined in favor of the complainant.

STANDARD SANITARY MFG. CO. v. ARROTT (two cases.)

1. ESTOPPEL—NECESSITY OF PLEADING—WAIVER OF OBJECTION.

Where, in a suit in equity, testimony of facts which it is claimed raise an estoppel against one party is introduced without objection, and contentious testimony disputing such facts is produced on the other side, the contention for an estoppel may be made at the hearing without having been pleaded.

2. SAME—MATTERS IN PARI—PROOF.

Where an equitable estoppel is relied upon, the facts upon which it is based must be proved with particularity and precision, and nothing can be supplied by inference or intendment.

3. SAME—ACTS CREATING.

In the absence of expressly proved fraud,

there can be no estoppel based on the acts or conduct of the party sought to be estopped, where they are as consistent with honest purpose and with absence of negligence as with their opposites.

4. PATENTS—EQUITABLE TITLE—EVIDENCE TO SUPPORT.

Evidence considered, and held insufficient to sustain a claim to the equitable ownership of a patent as against the patentee, either on the ground of contract or estoppel.

5. SAME—LICENSE—IMPLIED CONTRACT.

No implied contract of license to use a patented device, arising from the circumstances under which the patent was taken out and the relations of the parties, can be set up in the face of a proved express contract of license.

THOMSON-HOUSTON ELECTRIC CO. v. BLACK RIVER TRACTION CO.

(Circuit Court of Appeals, Second Circuit. January 23, 1905.)

1. PATENTS—CONSTRUCTION OF CLAIMS OF REISSUE.

Where claims of a patent were construed to include by implication an element not expressly claimed therein, but which was described and shown in the specification and drawings, and, as so construed, held anticipated, and, to avoid the effect of such decisions, the patentee applied for and was granted a reissue on a new specification, which expressly disclaimed such element, it should not be read into the claims of the new patent although they are in terms substantially like those of the old, but the courts should, if possible, adopt the construction placed on them by the patentee and the Patent Office giving effect to the disclaimer.

2. SAME—SUBCOMBINATION.

A patentee of a combination may also obtain a patent on a divisional application for a subcombination of some of the same elements if new and useful in itself, or in connection with previously known means or devices necessary to make the whole an operative machine or structure.

3. SAME—REISSUE—VALIDITY.

Even though the changes in description in the specification of a reissued patent are not material, and the claims are identical with some of those of the original patent, such facts do not impeach their validity.

4. SAME—INFRINGEMENT—TRAVELING CONTACT FOR ELECTRIC RAILWAYS.

The Van Depoele reissued patent, No. 11,872 (original No. 495,443,) for a traveling contact for electric railways, covers a novel and useful combination, and discloses invention. Also held unexpired.

PRESS PUB. CO. v. WESTINGHOUSE MACHINE CO.

(Circuit Court of Appeals, Third Circuit. February 24, 1905.)

1. PATENTS—ANTICIPATION—REGULATOR FOR GAS ENGINES.

The Westinghouse and Ruud patent, No. 583,585, claims 12 and 18 for a device for controlling and regulating the operation of gas engines, which may be adjusted at will to admit different proportions of air and gas to the mixing chamber, and also by means of a governor automatically regulates the quantity of the mixture fed to the engine, are void for anticipation, especially by the Hirsch patent granted in 1894.

2. SAME.

Claims for a patent for a device for regulating both the quality of the mixture of air and gas in a gas engine, and the quantity of the mixture supplied to the engine, which would otherwise be void for anticipation, are not saved by including in the combination some one of the old forms of automatic governor to actuate the quantity regulating valve, which is too obvious a step in the art to involve invention, such valves having been long in use for the same purpose on steam engines.

DE LAVAL SEPARATOR CO. v. VER- MONT FARM MACH. CO.

(Circuit Court of Appeals, Second Circuit. November 25, 1904.)

1. PATENTS—SEPARATE INVENTIONS OF JOINT PATENTS—CREAM SEPARATORS.

The Melotte and Reuther patent, No. 521,722, for improvements in cream separators, is void, as covering separate inventions of the joint patentees.

2. SAME—ESTOPPEL OF PATENTEE.

There is no estoppel which prevents a patentee from testifying contrary to the oath

made by him when applying for the patent in a suit between his assignee and a third party.

CHRISTENSEN ENGINEERING CO. v. WESTINGHOUSE AIR BRAKE CO.

(two cases.)

(Circuit Court of Appeals, Second Circuit. February 1, 1905.)

1. PATENTS—INFRINGEMENT—INJUNCTION—SERVICES—CONTEMPT.

Where a copy of an injunction issued against the infringement of a patent was served on defendant's attorneys, and a copy was inclosed in a letter properly addressed and mailed to defendant, such service was sufficient to sustain a proceeding for contempt, defendant being bound by the injunction if actual notice thereof was acquired by it, independent of service.

2. SAME—INFRINGEMENT—FINDINGS.

Where, in proceedings against defendant for contempt in selling certain valves alleged to infringe complainant's patent in violation of an injunction, complainant's statements were based on information derived from the parties in whose possession the infringing valves were found, and defendant did not deny making the sales, the trial court was justified in finding that the valves were infringing.

3. SAME—CONTEMPT PROCEEDINGS—NOTICE.

Where, in a proceeding to punish defendant for contempt in violating an injunction restraining the infringement of a patent, notice of the commencement of such proceedings was properly given to defendant's solicitors, and, under order of court, a notice of the application for attachment and a copy of the affidavits to be used thereon were sent to defendant by registered mail, and returned marked "Refused," defendant not having controverted the charge of contempt, an objection that the notice of the proceedings was not properly served was unsustainable.

4. SAME—PUNISHMENT—DISPOSITION OF FINE—REVIEW.

Where, in contempt proceedings a part only of the fine assessed against defendant was awarded to the complainant, the proceeding was reviewable by appeal, though, if the entire fine had been so awarded, the order could have been reviewed only on writ of error.

5. SAME—LIMITATION OF AWARD.

Where, in a proceeding to punish defendant for contempt in violating an injunction restraining infringement of a patent, the court found that complainant was entitled to a portion of the fine, only so much thereof should be so awarded as evidence disclosed would be sufficient to reimburse complainant for its expenses necessarily incurred in prosecuting the contempt proceeding and loss consequent on violation of injunction.

BRILL et al. v. PECKHAM MFG. CO.

(Circuit Court of Appeals, Second Circuit. January 9, 1905.)

PATENTS—VALIDITY—CAR TRUCKS.

An order granting a preliminary injunction against infringement of the Brill patents, Nos. 627,898 and 627,900, for a car truck, reversed on the authority of a decision of an appellate court adjudging such patents invalid.

MANHATTAN GENERAL CONST. CO. v. HELIOS-UPTON CO.

(Circuit Court, E. D. Pennsylvania. Feb. 6, 1905.)

1. PATENTS—CONSTRUCTION—METHOD PATENT.

A patent for a method of maintaining a constant electric current in an alternating current circuit, in which there are translating devices in series, is not limited by the description therein of an apparatus for practicing such method, which must be taken as merely illustrative.

2. SAME—METHOD OR PROCESS—PATENTS.

To support a process or method patent there must be a tangible product, or a change in character or quality brought about, and not simply a principle or result underlying or involved in certain mechanical or electrical means or steps. Telephone cases, 126 U. S. 1, 8 Sup. Ct. 778, 31 L. Ed. 863, distinguished.

3. SAME—METHOD OF REGULATING ELECTRIC CURRENT.

The Baker patent No. 684,165, for a method of regulating electric circuits, is void, as being merely for an operative theory, and one which, if sustained, would monopolize

every means by which such theory may be utilized or applied.

4. SAME—MECHANICAL PATENT—ABSTRACTION.

Where no concrete conception can be worked out of a claim for a mechanical patent, nothing indeed, but an ill-defined principle of construction, the only key to which is the abstract result to be attained, it cannot be sustained.

5. SAME—SPECIFICATIONS—HOW FAR RECEIVED TO REMEDY CLAIMS.

A claim for a mechanical or apparatus patent, otherwise invalid as an abstraction, will not be sustained by reference to the specifications, where it not only goes far beyond anything which is there suggested, but fails to refer to that which is admittedly a distinguishing feature of the invention upon which its novelty is made to depend.

6. SAME—LIMITATIONS IMPOSED BY SEPARATE SPECIFIC CLAIM.

While an invention is undoubtedly to be regarded as residing in a structure of the same general character as that which is described in the specifications, to which the inventor is to be confined, this does not restrict him to the particular form to which prominence is there given, where it is evident that he had variations of it in mind, and has formulated a claim in broad terms to cover them; the particular form having also been made the subject of a separate claim.

7. SAME—DISCLAIMER AFTER ISSUE—PURPOSE AND EFFECT OF—PRIOR ART—ABMISSION.

The purpose of a disclaimer after issue is to take out of a patent that which has been mistakenly or inadvertently included in it, by which it is made too broad. It must be of some distinctive and separable matters, and may be made use of to avoid the effect of having included more devices than could properly be the subject of one patent, or to remove an ambiguity. Matters so disclaimed cease to be a part of the invention, and the patent is to be construed as though they had never been included in it. They are not, however, to be taken as admitted to have been a part of the prior art.

8. SAME—VALIDITY AND INFRINGEMENT—REGULATOR FOR ARC LIGHT CIRCUITS.

The Baker patent, No. 684,340, for a regulating device for arc lamp circuits, claim 1, is void as too broad and abstract in its terms. Claim 4 was not anticipated by anything in the prior art, but covers a device of greater simplicity and a greater range of effectiveness than any previously known, and discloses patentable invention. Such claim is not confined to the specific device described in the specification, which is illustrative only so far as said claim is concerned, but covers any other device of the same general character, and which comes within the terms of the claim, and operates on the same principle as that shown; nor was it limited by the amendment of the specification made in the Patent Office in relation to the description of such device. As so construed, also held infringed.

9. SAME—CONSTRUCTION OF CLAIMS—AMENDMENT OF SPECIFICATION.

Claims of a patent are to be taken as they read, and are not limited by an amendment of the specification more particularly describing the device shown in the drawings to meet objections of the Patent Office, where the claims themselves are left unchanged.

10. SAME—OTHER CONTEMPORANEOUS PATENTS BY SAME INVENTOR.

An invention covered by a patent is not necessarily to be cut down by the fact that, while the application for it was pending in the Patent Office, other applications were brought forward from time to time by the same inventor, representing different developments of the same idea; all being allowed and issued the same day.

NATIONAL PHONOGRAPH CO. v. AMERICAN GRAPHOPHONE CO.

(two cases.)

(Circuit Court, D. Connecticut. March 17, 1905.)

1. PATENTS—INFRINGEMENT—PROCESS FOR DUPLICATING PHONOGRAPHIC RECORDS.

The Edison patent, No. 713,209, for a method of producing hollow cylindrical phonograms, is limited to the process of making such records by expanding the blank placed within the mold, and is not infringed by a casting process.

2. SAME.

The Edison patent, No. 667,462, for a process of duplicating cylindrical phonographic records, is entitled to only a narrow construction in view of the prior art, and, as so construed, is not infringed by the process of the McDonald patents, Nos. 682,901 and 682,992.

MECHANICAL INVENTIONS AND DESIGNS

Patents for which have been procured
through the Patent Soliciting Office
of E. G. Siggers, Patent Lawyer,
Washington, D. C.

Charles H. Russell, Manistee, Mich.
Folding Box or Crate—The folding box or crate of this patent is designed for shipping produce, and is adapted to be compactly folded when returning it to shipper. The box or crate, when folded, presents a solid structure, and cannot be broken or accidentally injured, and when it is arranged in operative position, it is adapted to receive a seal to prevent its contents from being tampered with undetected. The ends of the box or crate are hinged upon the bottom, and when folded inwardly, form end spaces or recesses. The lid or cover, which is removable, is provided with cleats arranged to fit in the recesses to permit the cover to lie flat upon the folded ends of the box or crate. When the box or crate is arranged for use, the sides, which are also hinged, extend above the ends of the box or crate, and provide spaces for the lid or cover and its cleats. The hinges of the sides are located in a plane above those of the ends, in order that the sides may be folded flat against the lid or cover.

Lewis Crise, Upper Sandusky, Ohio, inventor; The Central Ohio Buggy Co., same place, assignee, one-half interest. **Vehicle Body Loop**—This invention effects a marked improvement in vehicle body loops, and is adapted to throw the weight of the body squarely upon the springs, and thereby prevent twisting, straining or breaking the latter. The body loop equalizes the load, and prevents any undue strain upon either the body or the springs, and it spaces its upright portion and the spring from the body to prevent the latter from being scratched or marred. The upright side portions of the vehicle body loop are connected by a horizontal transverse portion having an enlargement at the center forming a seat for the spring. The horizontal portion is constructed of oval metal at each side of the central enlarged portion, with the major diameter of the oval portion in a horizontal plane to present substantially horizontal upper and lower faces. The horizontal portion is given a quarter bend at each end to arrange the major diameter of the upright side portion in a plane transversely of the vehicle. The bend is gradually and uniformly curved and twisted, and forms a partial spiral connecting portion, and the tensile strength of the metal is thereby carried throughout the entire loop.

Elias Goldsmith, Norfolk, Va., inventor; Otto Andrae, Jr., New York, N. Y., assignee, part interest. **Loom Attachment**—The loom attachment of this patent is the most ingenious device yet devised for straightening and smoothing out wrinkles of cloth, silk or other material as it leaves the loom, and at the same time, the attachment is characterized by the greatest simplicity. It consists of a substantially annular shell of resilient material arranged to encircle the cloth roll of a loom and adapted to guide the material to the same. It yieldably embraces and engages the roll and the material thereon, and it thereby smooths out the creases and wrinkles before the material is wound on the roll. The attachment is automatically adjustable, and expands as the material on the cloth roll increases in diameter. This automatic expansion of the attachment through the accumulation of the material on the cloth roll, insures the proper frictional engagement for removing the creases

and wrinkles, and for causing the material to run smoothly on the roll.

Elias Goldsmith, Norfolk, Va., inventor; J. Pearson Williams, same place, assignee. **Loom Picker**—The subject matter of this patent relates to that class of pickers employed in connection with the oscillatory picker staffs, and the object is to provide a device which may be manufactured of leather or other suitable material, the parts or portions thereof that are subjected to excessive wear being removable and renewable, the structure, moreover, having extended bearing surfaces for the staff. The picker consists of a wall comprising an outer surrounding casing, and a lining arranged within the rear portion of the casing, with its front ends terminating short of the front end of such casing. A partition block is interposed between the front ends of the lining and tapers towards its upper end, this block having its front face spaced from the front wall of the casing, forming a pocket in which a buffer detachably and snugly fits, the buffer being abutted against the partition, the front wall, and the front ends of the lining.

Edmund Miles, inventor, Marietta, Ohio; S. L. Selleck, assignee, Cleveland, O. **Three patents. Plate Handling Machines**—These three patents are of far more than ordinary interest. The machines are of that type which perform their functions so entirely without human aid, that they seem almost to possess human intelligence. In producing metal plates in rolling mills, the billet, which is a large slug of metal, is passed back and forth between heavy metal rolls which gradually roll out the metal, until a plate of the desired dimensions is obtained. To facilitate this passing and re-passing of the plate through the mill stand, it has been customary to provide tables located at opposite sides thereof and vertically movable. The plate passes through the stand from one table and is received by the other table, which then moves vertically and enables the plate to be fed back through another pass of the mill. In order to cause the proper movement of these tables, and the feeding of the plate from the tables to the rolls, various mechanisms have been utilized, but in all instances heretofore, it has been necessary for one or more attendants to operate hand levers, in order to cause proper movements of the parts at the proper times.

This series of patents shows the development of a plate handling mechanism which is absolutely automatic. After the billet has been placed upon one of the Miles tables, it requires absolutely no attention, since the machine automatically operates to feed the plate back and forth between the rolls until it has been rolled down to the proper size, and at such time the machine automatically stops the rolling of the plate and feeds the latter out of the apparatus at the rear side. It is therefore merely necessary to place the billet upon the table, and to finally remove the finished plate after the latter has been ejected by the machine. We predict that these patents will prove to be immensely valuable, since the invention undoubtedly marks a great advance in the art, and is covered by patents of exceptionally broad scope, securing to Mr. Miles and his assignee an absolute monopoly of completely automatic plate handling machines for a period of seventeen years.

Edward W. Hays, inventor; J. W. Hawkins and W. J. Holland, assignees, Birmingham, Ala. **Cotton Gin and Condenser**—This patent is one of unusual interest, since it discloses a very simple machine which performs simultaneously all of the functions of a cotton gin, a cotton seed delinter, and a cotton condenser. Furthermore, all of these functions

are performed in a more thorough and efficient manner than by the ordinary machines named. The gin saws are in the form of vertical blades having their opposite edges formed with teeth of peculiar shape. These blades or saws reciprocate, as distinguished from the rotation of the ordinary gin saw. The cotton is fed automatically to a chamber in which is located a rotary feeder. This feeder forms the cotton into a roll, and rotates it in contact with the reciprocating saws. The saws carry the fibre down through a narrow throat and into a condensing chamber, the saw teeth being of such shape that the fibre is not broken as it is carried into the chamber, and is not withdrawn from the chamber as the saws are retracted. The patent is one of unusual scope and promises a great advance in the cotton industry.

William Livingston, inventor; Flushing, N. Y., Samuel P. Porter, Brooklyn, N. Y., assignee. **Caster Horn**—This patent discloses a sheet metal caster horn stiffened uniformly throughout the shanks and crown by a continuous marginal flange. This horn is produced by a distinctly novel method, the distinguishing characteristic of which is that the marginal flange is drawn up from the edge of a blank of normal size, instead of being formed by bending up surplus metal at the edge of an abnormally large blank. An annular flange or bushing extends from the crown plate, and this also is drawn up from the metal. Mr. Livingston's method of forming these caster horns is not only far more economical than the ordinary modes, but results in the production of a horn possessing great stiffness. In fact, this horn appears to possess all of the advantages of both the sheet metal and cast horns.

Homer C. King, Elgin, Ill. **Stem Setting Mechanism for Watches**—The object of the invention is to simplify the general construction of the setting mechanism, and to provide for automatically throwing the setting mechanism out of operative relation with the pendant when the movement is displaced from the case. The device also reduces to a minimum the possibility of derangement when the teeth of the dial-wheel and clutch-sleeve fail to register upon the movement of the sleeve to the setting position, and the arrangement of the parts is such that they can be assembled and adjusted much more easily than in ordinary constructions.

Homer C. King, inventor; Harmon P. Vedder, assignee, Elgin, Ill. **Rail Clearer**—This is a distinctly novel device for clearing ice and snow from the third rails of electric roads. The structure can be readily applied to an ordinary car truck, and is easily movable into and out of operative relation with respect to the rail, accordingly as it is or is not needed. The structure consists of a swinging support carrying a clearing wheel disposed at an inclination to the track. A spring is arranged to urge the wheel into engagement with the track, and means are employed for locking the wheel either in raised or lowered position, this means being associated with the spring, so that, when the wheel is in engagement with the rail, more tension will be placed upon the spring than when said wheel is elevated. The wheel is so constructed that it will cut and dislodge the ice and snow from the rail, in order that the conductor shoe may have a proper electrical contact with the rail.

Alfred T. Stimson, San Francisco, Cal. **Two patents. Rotary Steam Engine and Valve Motion for the same**—The first patent discloses an engine in which the cylinders are disposed radially and revolve around a fixed axis. The piston rods are connected to the stationary wrist, and at the axis of the engine is a valve which

is held upon its seat by the pressure of the motive fluid and which controls the supply and exhaust of the fluid to and from the cylinders. Connected to this valve is a reversing lever for shifting its position. The steam is supplied to the cylinder through a hollow engine shaft and is exhausted in a similar manner.

The other patent shows the same type of engine, but a different arrangement of valve mechanism. In this case, instead of a single controlling valve common to all of the cylinders, each cylinder is provided with a controlling valve, and these several valves are operated by sun and planet gearing, the sun gear being adjustable by a reversing lever, so that the engine may be readily operated in either direction. In addition to these controlling valves, the engine is provided with governor valves connected to weights mounted to slide on the steam conduits of the cylinders. When the engine rotates at a given speed, these weights move outward by centrifugal force to operate the governor valves, and thus control the quantity of steam supplied to the cylinders.

Noah Langford, Tidwell, Texas, **Combined Cotton Chopper and Cultivator**—This machine is utilized for the simultaneous cultivation and chopping or thinning of the growing cotton plants. The chopper disk is mounted in the arched frame of the machine, and at opposite sides of the arch, side gangs of plows are attached to the frame and trail in rear thereof. The side gangs are adjustable on the frame, and are also capable of being swung laterally by the operator in order to permit the ground to be worked very close to the plants. The plow shoes are pivoted, and are provided with tension mechanism capable of being regulated without changing the inclination of the plows. The machine is also provided with various attachments which compensate for lost motion incidental to the wearing of the parts.

Ferdinand Kepp, Buffalo, N. Y. **Two patents. Gear Molding Machine and Brass Furnace**—The first of these patents discloses a gear molding machine of the type illustrated in former patents granted to the same inventor. The object of the present invention is to produce a machine particularly adapted for the molding of small and medium size gears. The machine embodies a rotary flask-supporting table associated with a pattern which is movable horizontally and vertically, and supported by a superstructure including a main slide or pattern carriage movable horizontally, and a pattern slide directly supported by the carriage and movable vertically thereon. The manipulation of the associated slides serves to present the pattern within the confines of the flask, and to project it into the sand body to form the mold, the rotation of the flask-supporting table serving to present successive portions of the sand body opposite the pattern.

The second patent discloses a metallurgical furnace, especially adapted to the manufacture of brass, but capable of other metallurgical uses. In order to produce an alloy of high grade without material oxidization, or material loss by the vaporization of its less refractory component metal or metals, as for instance, zinc, the inventor so constructs his furnace that provision is made for a separate initial heating of the several component metals to melt the base metal, and to bring the other metals nearly to their melting point. Subsequently, the less refractory metals are discharged into the molten base metal directly at that point where the flame impinges against the surface of the bath, in order that the precipitated metals will be instantly melted and combined with the base metal without material oxidization or vaporization.



Advertisements inserted in this column for 15 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE or on royalty—Patent No. 785,557, dated March 21, 1905. Porch and house swing. Takes up small floor space and does away with overhead frames. Will be a good seller. Address, William J. Kinback, Dunmore, Pa. oct

FOR SALE—U. S. Patent No. 786,651, and Canadian Patent No. 93,952—Best lightener. Should be everywhere where belts with buckles are used. Cheap for cash or on royalty. Address, Manning & Latta, Logan, S. D. oct

FOR SALE—Patent No. 791,958 dated May 30, 1905. Umbrella Rack. To catch drippings and prevent wetting of floor. Simple and neat. Can be manufactured and sold cheaply. Useful in restaurants, theatres, offices, and stores. Address, Andrew Mianich, No. 1010 7th Street, Sacramento, Cal. oct

FOR SALE—Patented May 16, 1905, double hook at both ends, made in different sizes, used anywhere that a snap or hook can be used, right end up any way it is hooked. Address, Lewis Mose, Granite City, Ill. sep

FOR SALE—Patent No. 758,800. Improved mapping or open line. Will sell cheap outright, or lease on royalty. Need money. Am looking for capital to patent several inventions. Will assign part on each patent. Address, Frank Wehke, Fort Wingate, New Mexico. sep

FOR SALE—Patent No. 789,899. Awnings. The greatest invention in the way of window shades or awnings. Apply to J. A. Charlton or J. F. Bigony, Hinton, W. Va. sep

FOR SALE or on royalty—U. S. Patent No. 788,417, dated April 25, 1905. Improvement in Furnace, viz. a Furnace Lining. Address, Miller & Marshall Mtg. Co., No. 210 N. Walnut, Centralia, Ill. sep

FOR SALE—Three patents cheap. Compensating Gearing, No. 787,015; Steam Engine No. 725,945; Steam Boiler No. 720,899. For automobile use. Address, E. C. Donville, 272 S. Main St. Wallingford, Conn. sep

FOR SALE—Patent on Nut Lock, most simple, cheap and effective, made of steel wire; does not change bolt or nut. Fits any bolt. Sell cheap or on royalty. Write for free samples and particulars. Address, W. B. McCullough, R. D. No 2 Monmouth, Iowa. sep

FOR SALE or trade—U. S. Patent No. 762,490. Apparatus for erecting telegraph and telephone poles and wires. Will sell or trade off in state rights, for well-located real estate, either to manufacturers or private parties. Address, William Parker, Box 665 Tecumseh, Neb. sep

FOR SALE—Patent No. 784,461, dated March 7, 1905. Automatic Fire Extinguisher. One of the best of its kind. Safe, simple, cheap, and durable. Will sell outright, or by states, or lease on royalty, or trade in part for land. Address, J. D. Williams, Box 814, Plymouth, Ind. aug

FOR SALE—Canadian Patent No. 90,678. Cultivator for hilling sweet potatoes and other crops. Best in the world. Will sell outright for cash. Address, William H. Page, Swedesboro, N. J. aug

FOR SALE—U. S. Patent No. 780,650. Non-refillable Bottle. Absolutely impossible to tamper with contents after being sealed. Simple of construction, effective, and practicable. Issued Jan. 24, 1905. Look it up and address, Wm. Gardner, Carberry, Manitoba, Canada. aug

FOR SALE—Patent No. 777,993, dated December 20, 1904. Music Chart. The easiest device so far invented. Anyone can learn to play in one day. It can be sold to nearly all piano and organ owners. The music charts sell \$1. per set; cost of manufacture per set two cents. Address, F. C. Kruschke, Berlin, Wis. aug

FOR SALE—United States, English, and German patent just issued on a Combination Tool. Will become a standard tool. Splendid hardware specialty. Address, W. L. Cooper, Speigner, Ala. aug

FOR SALE—Patent No. 783,413. Patent Cooling Apparatus, for cooling the walls of blast furnaces; also preserving the brick. Adapted to any vertical or inclined wall to protect the same against fire from adjoining buildings. The invention has been fully tested for two years. Will sell patent, or lease on royalty. Address, L. O. Brightbill, Glen Winton, Va. aug

FOR lease on royalty—Patent No. 786,253. A clay digging agitator for hydraulic dredges. Increases their capacity forty to sixty per cent. Will cut up the stiffest kind of clay. Address, George Meager No. 519 Ashland Block, Chicago, Ill.; or J. G. Glinespie, Oak Harbor, Ohio. aug

FOR SALE—Patents No. 784,142 and 731,932, patented March 7, 1905, and March 3, 1903. Automatic Weighing Apparatus. Can be attached to any grain spout or elevator. Will handle all granulated substances, and is accurate. Will sell state rights or U. S. outright, terms reasonable. Address, Mr. A. L. Buckland, Marietta, Minn. aug

FOR SALE or on royalty—U. S. Patent No. 732,746, Canadian patent No. 48,697. Shingle Guide. Great labor saver for carpenters. Handy, and cheaply manufactured. Does away with driving nails in roof. Write, Andrew Sivertson, Auburndale, Wis. aug

FOR SALE—Patents No. 774,693, Steering Apparatus for Ships, issued Nov. 8, 1904; and No. 755,928, Heat Regulator, March 29, 1904. Address, John Peterson, Lake George, N. Y. dec 05

FOR SALE—Patent No. 776,007, dated Nov. 29, 1904. Bottle. All cash, or cash and royalty. Correspondence solicited. Address, Hilaire Vincent, 357 Amherst Street, Manchester, N. H.

WANTED.

WANTED—To buy ideas or patents for new articles to manufacture as a sideline. Will consider all propositions, but prefer articles commonly used by the populace. Briefly give full particulars. F. Ravioli Company, Grand Rapids, Michigan oct

WANTED—Patented and unpatented inventions bought, sold and improved. Address, Frank Pavlik, Jr., Winnetka, Ill. sep

WANTED—A manufacturer in iron and steel to manufacture adjustable wheelchairs. Just the thing wanted for ages. Anyone can tighten them with a wrench without removing the wheel from the vehicle. Address, K. S. Cutter, Ochiltree, Texas. aug

INVENTORS OF SHEET METAL, WIRE AND PLASTIC MATERIAL GOODS.

The Wiet-Goethe Company of Sacramento, California, owns the best tool room and plant on the Pacific Coast, for the manufacture of goods made from sheet metal, wire and plastic materials. It makes a specialty of the manufacture of patented articles only, and will be pleased to receive from inventors, particulars of articles of this character. The plant is fully equipped in every particular, and offers to the inventors an unusually good proposition. This will largely apply to men of small capital, who in this way, can command the services of a plant, which could not be duplicated for thousands of dollars. Address, Wiet-Goethe Company, Sacramento, California.

Drawings for Inventors.

If you want copies of the drawings of your patent, we can procure them at these prices:

12 copies, each sheet full size (8x13)	\$ 2.50
25 " " " " " "	3.50
50 " " " " " "	4.50
100 " " " " " "	7.00
500 " " " " " "	13.00
1000 " " " " " "	17.00

12 copies, each sheet reduced 1/3 (8 1/3 x 5 1/4)	\$1.25
25 " " " " " "	2.00
50 " " " " " "	3.00
100 " " " " " "	4.00
500 " " " " " "	7.50
1000 " " " " " "	9.00

These copies will be made by the photo-lithographic process, by the firm which formerly attended to the Patent Office work, and will be equally as good as the drawings accompanying your letters patent. Five hundred copies of your patent would cost you at least \$25. We can furnish 500 copies of the drawings, if contained on one sheet, for \$13 full size, or \$7.50, if reduced one-third, the same reduction as your letters patent drawings. Your valued orders solicited.

The Inventive Age Publishing Company,
WASHINGTON, D. C.

YOUR NAME, BUSINESS and ADDRESS on a neat Rubber Stamp with pad and ink mailed for 20c. I. A. Durham Co., Corry, Pa.

Magic Rheumatic Cure!

It absolutely does cure. It is not a cheap remedy but it is a cheap cure. Mark the distinction! There are a thousand remedies to one cure. This is A CURE. It costs \$2.00 a bottle, and is worth \$20.00 to any sufferer. Sold only by our authorized agents or direct of us. Send for circular. Agents wanted.

MAGIC CURE CO.

R. 313-315 Dearborn St.

Chicago.

A NEW BOOK FOR INVENTORS.

Patents and How to Make

Money out of Them.

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trademarks and copyrights. It also tells accurately how and what to invent how to sell inventions, place them on the market, interest capital in them, and to successfully promote a stock company. It also contains an index of forms worth double the price of the book, to any one interested.

ELEGANTLY CLOTH BOUND.

GOLD STAMPED. \$1.00 Postpaid.

Sent with one subscription to AGE for \$1.75.

Or will sell separately.

Address— The Inventive Age Pub. Co.,

918 F St., N. W. WASHINGTON, D. C.

Bee-Keepers

Should all subscribe to

THE AMERICAN BEE-KEEPER,

(Established 14 years.

50 cents per year.)

The best magazine for beginners. We will send it **Six Months on Trial** for 20 cents. Sample copy free.

Address:

The American Bee-Keeper, Falconer, N. Y.

It is published by the

W. T. FALCONER, MFG. CO.

One of the oldest and largest makers of bee-keepers' supplies. Catalogue free.

FREE! Send us 2 cents to pay for postage and we will mail you a valuable copyrighted book, "How to obtain Patent, Caveat, Trade-Mark and Copyright Protection, with Decisions in Leading Patent Cases" entirely free of charge. Address: **INVENTIVE AGE PUBLISHING COMPANY,** (Dept. P.) **WASHINGTON, D. C.**

Attention Inventors!

LISTS OF MANUFACTURERS FURNISHED.

We have increased our facilities for furnishing lists of manufacturers, and now cover every line of industry.

Our charge for each list is one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad will be inserted three times.

THE INVENTIVE AGE PUBLISHING CO., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.



Inventive Age

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 918 F Street, N. W.,
WASHINGTON, D. C.

The INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND A HALF.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

The INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 15 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,
WASHINGTON, D. C.

Entered at the Post-office as second class matter.

WASHINGTON, AUGUST, 1905

THE WORK OF THE PATENT OFFICE.

The condition of the work of the Patent Office at the close of business August 1, 1905, shows that the number of divisions under one month in arrears has now decreased to two. Divisions I and XV are the two divisions which were, on the first of August, 1905, considering applications filed in July. There were fifteen divisions reported as considering cases filed during the month of June; fifteen were reported as having under consideration applications filed during the month of May; and six divisions as having under consideration applications which were filed in April.

The total number of applications awaiting action August 1, 1905, were 17,655, an increase over the number reported in last month's AGE.

The Trademark Division reports over 4,600 applications awaiting action, the new applications for registration having been examined up to May 4, 1905. It is stated that the work of the Patent Office shows an increase of over twenty-five per cent within the last year. As a result of this condition, the time required to obtain a patent is considerably longer than it has been for a number of years. Indeed, it seems impossible in some divisions, to obtain a patent within less than a year. If applications were allowed as soon as reached, it would be different. Then, an applicant would know that all he would have to do would be to wait for three or four months, and when that time rolled around, he could expect his patent; but it is when the case has been reached for action by the Patent Office, that the real work of the prosecution of the application begins for the applicant or his attorney, as applications are rarely allowed on the first official action. Objections are usually made either to the specification drawing, or claims, necessitating amendment on the part of the applicant or his attorney; and if the objections are numerous, and repeated on the first and third actions, requiring an

cant to amend more than once, the case is further delayed. Take, for a single instance, one of the divisions of the Patent Office which was considering on the first of August 1905, new applications filed April 1, 1905, and amended applications filed April 6, 1905. An applicant, whose application was assigned to that division, would have to wait four months for the first action, four months for the second action, and four months for the third, and so on. If the rejections of the examiner were repeated, involving the preparation of replies in the form of amendments or arguments, a year might go by without any definite results being reached. It is in the amendment or prosecution of an application that the best elements of an attorney are developed. If he is a conscientious man, he will fight for the interests of his client, and endeavor to obtain, without limitations, the claims originally presented, provided he considers them patentable. If, however, he is one of those attorneys who has obtained his fee, or having it in prospect, wants to get hold of it quickly, and desires early allowance of the application so as to wind up his connection with the case, it is very easy for him to concede the examiner's objections and put the application in an allowable condition, not caring or thinking about whether or not his client will suffer by his improper attention to the application.

The moral of this is to exercise care in the selection of your attorney.

CHANGING THE TERMS OF PATENTS.

The suggestion made by a former Commissioner of Patents, who is now practicing before the Patent Office as an attorney, to change the terms of patents, is a subject which is entitled to serious consideration. As he states, there is no reason for making the terms of patents for toys of the same length, and the government fees the same in amount, as the terms of patents in telegraphy, telephony, testing machines, and other important long-lived inventions in machines and processes. He thinks that the terms of all patents of the United States should be changed, classified, and systematized, and the government fees made proportionate to the terms selected. He suggests terms of five, ten, fifteen, twenty and twenty-five years, at the option of the applicant. As is well known, design patents are granted for three and one-half, seven, and fourteen years, and there was a time when design patents could be obtained for many simple toys and articles; but in view of the design patent law as it stands today, and as it is interpreted by the Patent Office, one who invents a toy, or a simple device, must apply for and secure a mechanical patent, running for the full period of seventeen years, when a shorter term of years would, in many instances, be ample.

We think that the plan of having the terms of all patents vary at the wish of the applicant is one that would meet with much favor, if put in practice. We can, at present, see no objection to the enactment of such a law.

PUBLIC USE.

The decision of the Court of Appeals in re Mills, reported in the Patent Office Gazette of July 18, 1905, raises again the old but interesting question of public use. Among other things, Section 4886 of the Revised Statutes, provides that:

"Any person who has invented or discovered any new and useful art, machine, manufacture or composition of matter, or any new and useful improvements thereof * * * * * not in public use or on sale in this country for more than two years prior to his application * * * * * may, upon payment of the fees required by law, and other due proceedings had, obtain a patent therefor."

From the first, the question of public use has been a prolific source of contention, both within the Patent Office and in the courts. The defense of public use is frequently urged in infringement suits. Some of the circuit courts have appeared to be very harsh in applying the doctrine of public use, because of which, the Patent Office has, at times, ruled thereon too strictly. It seems to us that in considering the Mills case, the Patent Office was not actuated by a spirit of liberality, and we believe that the Court of Appeals was right in reversing the decision of the Patent Office in the Mills case.

It appears that in this case, Mills, at the time of making his invention, was manager of the Emerson Manufacturing Company, which was engaged in making and selling paper mill machinery, including thereunder Jordan engines. He was not financially able to build a Jordan engine, to which his improvement related, and tried in several ways to get one built, but he was naturally dependent upon his employer to incorporate his invention in one of their Jordan engines. The Emerson Company would not do this until an order was secured for one of the improved machines. The Nashua River Paper Company gave such an order the latter part of December 1898, and the Emerson Company accepted the order with the understanding that Mills was not to have any royalty or profit from any engine sold by them to the Nashua River Paper Company. The order was also given and accepted upon the understanding that should the new engine prove defective in any way, the Emerson Company would furnish Nashua Company with one of the regular style, and allow them the difference in price which they were to pay for the engine should it prove all right.

The engine was received by the Nashua Company in the latter part of April 1899, and while there, the inventor sent several times to learn if it was in use, and with what result; and also went himself for that purpose. Mills filed his application April 23, 1901.

The question to be determined was whether or not a machine made and sold under such conditions, more than two years prior to the filing of an application for patent, was a sale such as is contemplated by section 4886 of the Revised Statutes.

The several tribunals of the Patent

Office decided that a case of public use had been made out, and refused the grant of a patent. The Court of Appeals, in reversing the decision of the Patent Office held that "forfeiture of the invention cannot, and in fairness should not, be predicated on the sale relied upon."

The general rule, in cases of public use was thus stated by the Court of Appeals:

1. A single unrestricted sale by the inventor of his invention is a public sale, within the meaning and intent of section 4886 of the Revised Statutes.

2. A single sale of the invention by the inventor for experimental purposes, where he is unable otherwise to make proper tests, does not put the invention "on sale" within the meaning of the law.

3. Where a clear case of "on sale" is established, the burden is on the inventor to prove that the sale was for the purpose of having proper tests made, and that the sale was, at least to that extent, a restricted one.

In deciding in the Mills case that the sale was for experimental purposes only, the Court of Appeals followed the decision of the Supreme Court of the United States in the celebrated case of Elizabeth vs. Pavement Company, in which the patent was sustained, notwithstanding the fact that the pavement covered by the patent had been in public use for over ten years prior to the filing of the application for patent. The Supreme Court held that, in the case of a pavement, it was necessary to test it a number of years in order to determine its wearing qualities, and that this should not operate against the patentee.

In the case of Swain vs. Holyoke Machine Company, Judge Putnam stated, "We should hesitate to lay down the broad proposition that a single sale of a patented device for experimental purposes works a forfeiture of the patent under the Statute. We do not understand that it has ever been so expressly decided by the Supreme Court."

From the foregoing, it would appear to be a safe proposition that use of an invention for over two years prior to the filing of an application for patent thereon, will be regarded as public use, and prohibited by the Statute, if made and used for purposes of profit, and not for experiment.

EXTENSIONS OF PATENTS.

Under the present law, a patent cannot be extended, except by Act of Congress, and as a result there has been no patent extended for over twenty years, though repeated applications have been made to Congress, many of which applications were meritorious. We recall very distinctly the application of the patentee of the wooden dish patents, which was before Congress about four or five years ago, but met with the usual fate. In that case, the patentee and his assignee had been subjected to a great deal of expense in defending the patents against infringement, and when the patents had finally been sustained in the highest court, they found remaining only a few years in which to enjoy the monopoly which was supposed to have been guaranteed to

them on the issuance of the patents. Hundreds of such cases might be cited.

Because of the impossibility of having a special act passed in each case, there is a concerted effort on the part of manufacturers, well-known inventors, and attorneys, to have a patent extension law enacted. Until March 2, 1875, patents were granted for fourteen years with the privilege of an extension for seven years, the application for the extension being passed on by the Commissioner of Patents; but when Congress passed the law extending the term of a patent to seventeen years, it took away from the Patent Office the privilege of granting extensions, making it necessary for each patentee to seek relief by a private bill in order to obtain the extension of his patent. Indeed, the act of Congress, if passed, does not settle the matter, as this is only the preliminary step. The procedure is a long and expensive one, and, as above stated, no patentee has been able to get his patent through the many pitfalls which are placed in his path under the present practice of securing extensions.

It is the general consensus of opinion that a carefully prepared conservative amendment to the patent laws, providing for reasonable extensions of patents in proper cases, should be enacted. There are many instances in which, for lack of such a provision, inventors have not received the reward to which they were, in all fairness, entitled. A common instance is where an inventor is so far ahead of the times that the term of his patent expires, at least in large part, before the public fully understands, adopts, or appreciates his invention. Another instance is where persistent infringements necessitate prolonged and expensive litigation, thus oftentimes not only unjustly dividing the inventor's business for many years, but making his patent a source of expense instead of profit.

We shall have more to say concerning this matter in future issues of the AGE, and should like to hear from our readers on this subject.

New Brickmaking Process.

The Pennsylvania Coke Company has just started a new process of brick-making from two of its by-products—clinkers from the furnaces and spent lime from the purifiers. The lime, after being mixed with a proportion of clinkers (about one-fourth of lime to one of clinkers) is raised into a calcining tower and converted into carbonate and silicate of calcium. It is slaked with water, mixed with a further proportion of clinker and then passed through a tempering mill, the proper quantity of water being added. By another elevator it is carried to a platform and delivered into a toggle press, which turns out the manufactured brick in a soft form. Placed on wagons, the bricks are run into a large tubular vessel capable of holding 7,000 bricks. Here they are subjected to a pressure of about 110 pounds, for upward of 12 fol-

lowing which they are s and

are ready for sale.

The bricks are said to b etter

quality than these produced in the ordinary process of manufacture, their resisting strength being about 350 tons to the square foot. The absorption of water is small from $\frac{1}{2}$ to 5 per cent, which compares very favorably with the ordinary brick. These bricks have been rigorously tested by an engineering expert: have been alternately frozen and thawed, and subjected to acid tests. They are said to be entirely satisfactory.

Coreless Apples.

Seedless fruits, beginning with the seedless orange and spreading to a variety of products, are no longer a novelty. The seedless apple has appeared in half a dozen different trees, but those trees would not produce trees that bore seedless apples. Besides, the apples which grew on the original trees had little juice and being small, were of slight commercial value. Now comes an Englishman with a seedless apple tree from which one can bud and graft, thus obtaining other trees which will produce coreless apples.

Mr. Spencer first succeeded in getting five trees which yielded fruits practically without seeds. From these five he budded and grafted to see if they would reproduce themselves. He has now in his orchard trees six or eight years old, all bearing seedless apples. Of course, as these trees stand in close proximity to ordinary apple trees, a small percentage of the apples on the seedless trees have one and sometimes three seeds, but they are as apt to appear in one part of the apple as another. It is impossible for the Spencer seedless apples to bear seeds of their own accord. The seed which is occasionally found is produced by the pollen from the common apple trees being carried to the seedless trees by bees or the wind.

The coreless apple tree produces no proper or petaled blossoms, thus upsetting the horticultural proverb—"no blossom, no fruits." The tree produces a cluster of small green leaves like a disorganized bud. It is here that in due course the fruit forms. There being no petals or fragrance, the codlin moth, which has wrought such devastation in orchards, passes it by. The trees are propagated from buds, no seeds being available.

Apples from these seedless trees grow as large as the ordinary winter apple and contain as much juice. They are red when fully matured and have large strawberry dots. The flesh is firm and they are excellent keepers. The trees are prolific bearers. There is an absolute saving of about 25 per cent in the seedless apples on account of there being no waste, except the peeling. This fact cannot be overestimated when it comes to evaporating and drying the fruit, as well as to cooking it. There being no seeds in the apple, there is no need for seed pockets, consequently nature eliminates the core of her own accord.

For some years the trees and also the fruits will be very costly: but extensive experiments are being made, and possibly within a short time the leading apples of commerce will be seedless.

CHANCES FOR GENIUS.

Big Prizes Offered by Foreign Nations.

Many no doubt will conclude that there is practically no chance of securing such desirable prizes as the large sums of money—five prizes each worth £8,000—offered by the Nobel bequest, where it is absolutely needful to have attainments of both a learned and brilliant nature, yet a study of the following particulars of prizes which are being offered today will show that there are other splendid opportunities well within the scope of most people.

Among the many varieties of cactus there is one which is known as the prickly pear; it is a rather attractive-looking plant, but its leaves are covered with hair sharp enough to pierce the hands of any one who is so rash as to touch it. The plant came originally from America, but after it was introduced in some manner into Queensland, it spread so rapidly and to such an extent that in some districts it has practically destroyed all other vegetation. The Queensland government is still offering a reward of £5,000 to any one who can devise a method by which it can be completely eradicated.

The British consul at Palermo not long since sent a dispatch to the foreign office containing information regarding a premium of £2,000 that the municipality of Cantania is offering. In order to encourage local industrial enterprise this sum is to be awarded to the individual who establishes some new industry in the town: trade is to be of such a nature that it will employ not fewer than 100 workmen; a further £1,000 will be paid for every additional fifty hands that are afterward employed. These sums would be payable at the end of the year in five equal installments.

Five hundred pounds is to be obtained from the government of Holland. As most people are aware, the Dutch are the most expert diamond cutters in the world, but in this diamond cutting it is necessary to use an alloy which is dangerous to health. Is it possible to find a method of doing without the aid of this alloy?

Again, to turn to a very different source of money-making by competition, there is £500 being offered by the well-known firm of Ricordi & Co. In order to encourage English opera that firm has offered this prize, to be competed for by English subjects alone, and has guaranteed to produce the successful work at the Royal Opera House, Covent Garden. M. Massenet has already been secured as one of the adjudicators.

Mr. Woodbury, a well-known American philanthropist resident in New York, offers £200 to any married man who can convince a jury of twelve matrons that there is in that city a single specimen of a perfectly happy married man. Mr. Woodbury's contention is that bachelors and spinsters form the happiest section of the community; he urges nothing against marriage in general, and says that his arguments refer only to the conditions of life in New York. Mr. Kerr, who takes the side of the married man, and Mr. Woodbury himself will act as counsel, while a committee of single men will act as judges.

Women can gain a prize of £200 which is being offered by the Women's Institute of Science at Naples: it is to be given for the best work on any subject of scientific research, but it must be based on independent laboratory experiments.

Another interesting subject is "The

best, least irksome and least costly method of securing the male able-bodied youth of this country for service in the regular or auxiliary forces, and for expanding these forces in the time of war." For the three best essays dealing with these topics the Royal United Service Institution offers prizes consisting of 100 guineas, 30 guineas and 10 guineas.

A very big prize is that which a millionaire residing in Paris, M. Daniel Osiris, has instituted on similar lines to that laid down by Mr. Nobel. This prize, however, is confined to Frenchmen, except during any year when an exhibition is being held in Paris, when it becomes open to people of any nationality. A sum of money has been set aside that will produce not less than 100,000f., and this amount is to be awarded every three years in perpetuity to the discoverer, inventor or producer of the idea or object that will do most to benefit humanity.—*London Tid Bits.*

Asbestos for Building Material.

Recent experiments with asbestos building board show very interesting results. The tests were made in New York city, on asbestos building lumber and magnesia building lumber, and they show conclusively that both these materials are superior to wood for the purposes for which they are manufactured, but that the asbestos lumber is much better than the magnesia. Such asbestos lumber, when employed in the construction of street railway and standard railway cars, for covering the end framing, should prevent the cars from taking fire by any derangement of the electrical apparatus. Another type of asbestos building material that is beginning to be extensively used is asbestos board or sheathing, for roofing and for side walls. An asbestos shingle recently patented is composed of asbestos fiber and hydraulic cement. These shingles are much stronger than slate, and lighter in weight. They are made in three colors, gray, slate and tile red, in squares four and a half inches on a side, with two corners of the square truncated. The use of asbestos materials in building has been considered chiefly from the standpoint of fireproofing: yet there is another and perhaps as important a reason for their employment, and that is for preserving an even temperature in the building erected. Houses so built as to be surrounded by asbestos should be cooler in summer and warmer in winter than other houses.

The most notable change in the asbestos industry last year was the increase in the demand for the chrysotile variety. The many new uses which have been devised for chrysotile asbestos have created a demand for it that is in excess of the supply. The high price which can be obtained for the chrysotile asbestos, when it is in fibers of sufficient length for spinning, permits the mining of this mineral in some places where the cost of mining would become prohibitory with any material decrease in price.

Subscribe for the Age.

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the INVENTIVE AGE, which publishes a list of all patents issued each month, and the current decisions of the courts in patent, trade-mark and copyright matters. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy; twenty copies \$1.50.—Please give correct data in ordering.—Address,
THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

Issued July 4, 1905.

MECHANICAL PATENTS.

Address forms in strips. Machine for mounting.....L. A. Agnew
Advertising device operating mechanism.....F. M. Wadsworth
Advertising machines. Reversible blade for changeable.....E. O. Wilcox
Advertising trick device or puzzle.....W. H. Burn
Animal holder.....R. Thompson
Arm rest for bookkeepers or writers. Pneumatic.....W. W. Williams
Atomizer.....E. E. Menges
Automatic register.....E. J. Barker
Automatic switch.....W. D. Simpson
Awning crank gearing.....E. Rosenberg
Axle lubricator.....G. W. Pero
Bank, Savings.....C. Fisher
Barber's antiseptic utensil.....H. Rosenthal
Barber's chair foot rest.....K. Stuts
Bed bottom. Spring.....J. F. Brown
Bed brace.....C. W. Negley
Bed. Conch.....C. A. Baker
Beds. Bed rail fastener for iron.....J. Ne son
Bedstead.....A. J. Olson
Beit for holding horseshoe nails or the like.....W. Kerney
Bicycle whistle.....R. C. Ayers
Billet piercing mill adjusting mechanism.....M. F. Capron
Billiards or the like. Apparatus for indicating the scores of players in such games as.....C. S. Oakes et al
Bin.....E. J. Walker
Binder lock. Loose leaf.....J. S. McDonald
Binder. Loose leaf.....R. Coleman
Binding strips. Machine for making metal.....B. F. Mackall
Boat.....J. W. Beall
Boat.....C. A. Manker
Boiler cleaner.....F. J. Hostetter
Boiler furnace and flues. Apparatus for the manufacture of steam.....E. Gearing et al
Boiler furnaces and flues. Manufacture of steam.....2 pats.....E. Gearing et al
Boiler stay.....R. F. O'Hearn
Boilers. Making corrugated furnaces and flues for steam.....E. Gearing et al
Bolt and nut lock.....J. V. Culliney
Book.....R. P. Branson
Book and collection envelop. Combination class.....S. W. Nichols
Book. Order.....C. A. Mouson
Books, ledgers, &c. Lock for adjustable back frames of account.....A. D. Huquist
Bottle.....R. G. Davis
Bottle cleansing machine.....J. H. W. Ortmann et al
Bottle. Non refillable.....P. H. Edwards
Bottle. Non refillable.....A. Schenck
Bottles or other containers. Closure for.....J. B. Williamson
Bracket.....W. B. Oliver
Bracket.....J. Assel
Brake.....T. F. & M. J. Brennan
Brake rod connection.....G. A. Woodman
Brake shoe.....A. A. Smith
Brick machine. Compressed air operated hydraulic.....T. S. Rouse
Briquet and making same.....H. E. Marsh
Brush for doors. Fly.....H. N. Jasper
Brush. Pneumatic.....L. W. Hardy
Buckle.....C. A. Mann
Bung.....J. P. Baumgartner
Bunting apparatus.....J. P. Baumgartner
Burial case.....P. D. Skahan
Buttonhole cutting and stitching machine.....2 pats.....E. B. Allen
Button holder. Collar.....K. C. Laverty
Calipers.....T. S. Glover
Can.....R. Hanna
Cans or the like. Machine for making.....W. J. Kenny
Cap.....R. A. Hall
Capacity.....R. A. Fessenden
Capstan.....W. J. Roberts et al
Car door lock.....C. O. Johnson
Car frame and bolster. Railway.....J. J. Hennessey
Car. Grain.....J. J. Hennessey et al
Car. Passenger, baggage, or the like.....A. Christanson
Car seat.....H. F. Vogel
Car ventilating medium.....C. P. Bonnett
Carbid holder.....L. S. Buffington
Carbonating apparatus.....H. H. Cushman
Carburetor.....G. W. Fallin
Carbureter.....A. H. Helmle
Carpet lining.....J. H. Beale
Car self-loading device.....Z. Whitmore
Cash register.....W. F. Bockhoff et al
Catch. Safety.....I. M. Brittain
Cattle guard.....M. J. Comerford
Cattle guard.....S. A. & H. W. Armstrong
Cement post and fastener.....O. D. Reeves
Chair base hub.....H. W. Bolens
Child's chair.....I. Unger
Cigarette or cigar igniting composition.....J. F. Dunne
Clamping or bar protecting apparatus.....G. J. Thust
Clasp.....A. H. Marsch
Cleaner.....R. B. Hodge
Clothes pin.....M. F. Grubbs
Clutch. Friction.....L. S. Clarke
Clutch. Friction.....W. H. Fulcher
Clutch mechanism.....J. S. Duncan
Clutch operating mechanism.....F. A. Rider
Clutch. Positive lock.....L. J. Creelius
Clutch. Rope.....C. J. Sykes
Coating wire or forming tubing. Machine for.....O. Monroe
Cock for flushing tanks, &c. Ball.....G. F. Condit

Coffee pot.....W. L. Haley
Coke oven attachment.....D. F. Lepley
Compressor. Multiple effect.....G. T. Voorhees
Concrete block molding machine.....E. & T. Mistelski
Condenser.....R. A. Fessenden
Conveyer for metal bars.....V. E. Edwards
Cooker. Steam.....S. T. Williams
Copy holder.....G. C. Beidler
Corkscrew and spoon holder.....A. M. Irby
Corset. Apparel.....D. Kops
Cot. Folding.....R. L. Herman
Cotton separator.....W. A. Patterson
Coupling.....K. P. Snyder
Coupling.....C. A. Parrish
Coupling.....R. G. McDowell
Crate. Folding egg.....J. S. Campbell
Crate or container for hats. Shipping.....L. F. Towns
Cream separator. Centrifugal.....S. C. Anker-Holth
Cuff or collar protector.....E. B. Maxon et al
Cultivator.....W. S. Sobe
Cultivator. Surface.....J. A. Hamelback
Current motor.....P. Henrichs
Currycomb.....F. N. Hackett
Curtain hanging means. Lace.....K. Spickerman
Curtain pole.....H. J. Upperman
Curtain rod attachment.....A. Buecking
Curtain shade cutting machine.....P. A. Uzel
Cushion spring.....W. R. Smith
Dental chair head rest.....F. Ruter
Dental drill handpiece.....G. R. Gossling
Dental engine handpiece.....G. R. Gossling
Dental plates. Means for securing artificial teeth to.....L. E. Evslin
Desk pad attachment.....C. A. O'Connor
Diaz compounds. Making.....T. Sandmeyer
Dish washer.....C. Curry et al
Display device.....H. E. Parsons
Display rack. Extensible.....C. K. Hurd
Distance bar and brake brace rod. Combined.....N. T. Harrington
Distilling apparatus.....E. E. Morlan
Door closer and fly chaser. Combined.....B. Dodd
Dowel.....C. L. West
Draft driven generator.....W. H. Jordan
Draft rigging.....D. A. Hitchcock
Drill appliance. Hand.....E. M. Miller et al
Drill press.....H. F. Noyes
Dye. Orange red acridin.....O. Soht
Educational device.....J. B. Olivera
Educational device.....J. F. Burke
Educational device.....W. H. Goldsmith
Electric control ler.....C. S. Reno
Electric protective apparatus.....F. R. Parker
Electric spark system.....F. I. & B. P. Remy
Electromagnetic wave receiver.....R. A. Fessenden
Elevator.....L. H. Nielsen
Enameled ornament.....O. L. Heintz
Engine attachment. Explosive.....W. B. Hayden
Explosion engine.....R. O. Le Baron
Fabric and ornamenting same.....W. J. Pope et al
Fan supporting device. Electric.....S. G. Leach
Farm gate.....J. T. Cannon
Fastener. Separable.....A. Eklund
Fastener. Separable.....S. Hainsfurther
Feeder. Steam boiler.....W. J. Pickering
Fence fabric wire.....M. D. Pendergast
Fence weaving device.....E. C. Wood
Fence wire pliers.....H. L. White
Filling case.....J. Drain
Filter.....2 pats.....E. M. Knight
Filtering apparatus. Liquid.....S. H. Johnson
Fire and burglar alarm.....P. M. Esser
Fire escape.....J. C. Covert
Fire escape.....F. G. Hendricks
Fire extinguisher.....J. A. Case Jr
Fires within inclosed structures. Means for extinguishing.....J. H. Hodge et al
Firearm safety device.....G. H. Tansley
Fireproof floor, &c.....E. Homan
Fish hook.....O. O. Waugen
Flue dust. Using.....C. S. Price
Flue dust. Utilization of.....C. S. Price
Flushing vent.....T. H. Clark
Fly paper holder.....J. H. Blen
Footh bath.....J. L. Kerstetter
Forging wheel blanks.....J. H. Baker
Fruit gatherer.....C. Hertz
Fuel and making same. Artificial.....G. M. Dallas
Furnace.....E. Lane
Furnace.....J. Kirby
Furnace charging apparatus.....G. Schuhmann
Furnace charging box.....C. C. Smith
Furnaces. Electric switch system for blast.....R. G. McFarland
Furniture. Article of wire.....L. F. Griswold
Game apparatus.....C. J. McCannell
Game apparatus.....A. Klein
Garment closure.....N. Menzl
Garment supporter.....T. G. Hunt
Gas generator.....W. Nacken
Gas generator. Acetylene.....J. H. Eichler et al
Gas generator. Acetylene.....3 pats.....L. S. Buffington
Gas heater and burner.....J. L. Reid
Gas producer.....reissue.....A. B. Duff
Gas. Purifying.....A. W. Fischer
Gas retort charging machine.....C. Eitle
Gases. Absorbing.....A. Wulze
Gases. Means for removing dust from.....J. Shields
Gate closer.....H. W. Meyer
Gearing. Transmission.....C. Upton
Glass articles. Apparatus for depositing layers of glass on.....H. A. Schnellbach
Glass articles. Depositing layers of glass on.....H. A. Schnellbach
Glass articles. Manufacture of.....J. J. Power
Glass forming apparatus.....D. Murray
Glass sheets. Manufacture of.....F. L. O. Wadsworth
Gold separator and concentrator.....R. T. Marshall
Grain drill.....A. Armitage
Grain elevator leg.....C. H. Smith
Grate.....A. Sartore

Gun carriage or mounting.....A. T. Dawson et al
Gun lock. Breakdown.....J. T. Godbout
Gun. Recoil.....O. Lauber
Hair retaining comb.....H. W. Rosenbaum
Hammer. Fluid pressure.....C. R. Green
Harvester. Broom corn or corn.....G. H. Pallady
Harvester feeder. Self binding.....W. E. Poese
Hat, coat, and umbrella rack. Combination.....A. Abelson
Hat holder.....V. F. Diebel
Hay cap.....H. J. Benderoth
Hay press.....R. U. Crawford
Heater.....W. J. Bolton
Heel. Shoe.....E. Locher
Hinge. Safe or vault door.....2 pats.....J. H. Williams
Hitching weight holder.....H. H. Tothill
Hoe.....A. Richardson
Hoisting device.....J. Kambish, Jr
Horseshoe.....J. H. Gay
Hose coupling.....A. H. Anderson
Hose rack and valve. Combined.....F. R. Porter
Hose supporter device.....M. H. Gerstle
Hot air furnace.....J. Leppla
Hydraulic elevator.....W. H. Reeves
Hydrocarbon motor.....A. A. Low et al
Hydrocarbon motor.....A. A. Low
Implement. Vapor heated or gas heated.....W. Mitchell
Indigo vat. Hydrosulfite.....P. Sellet
Indigo white. Making.....P. Seidel et al
Induction motor.....W. D. Pomeroy
Induction motor.....E. C. Wright
Ingot deliver car.....T. James
Inking roller constrictor.....F. W. Hunter
Insulating handle connection.....J. H. Gault
Insulation.....G. A. Weber
Jar and fastener therefor.....R. H. McCoy
Jar or similar vessel cover.....H. G. Roth
Joints. Making brazed.....J. E. Richardson
Journal box.....J. C. Baker
Knitting machine.....J. Johnson
Knitting machine stitch transferring mechanism.....M. J. Shaughnessy
Lacing terminal fastening device.....S. Schwarzschild
Ladder and ironing board. Combined step.....W. P. Smith
Lamp. Bracket.....J. A. Loomis
Lamp bulb. Incandescent electric.....R. R. Kintz
Lamp fixture. Electrical.....B. W. Perrigo
Lamp holder. Multiple electric.....E. L. Elliott
Lamp. Incandescent gas.....A. Farkas
Lamp socket.....W. J. Jones
Lamps. Spark tight box for arc.....H. B. Ssing
Last. Shoe.....A. R. Garrod
Lawn edge trimmer.....K. P. Winsor
Leg. Artificial.....J. K. S. Farris
Legging.....J. W. Pynch
Linoleum. Manufacture of.....A. A. Godfrey
Linotype machine.....F. E. Bright
Liquo controller.....W. S. Shields
Locomotive engine and tender coupling.....G. W. Rittersbach
Locomotive tender frame.....W. McIntosh
Loom stopping means.....E. S. Stimpson
Lubricating loose wheels.....I. Deutsch
Lubricator.....F. G. Ward
Lubricator.....A. B. Wright
Lug strap holder.....A. F. Sch field
Magnet. Lifting.....A. C. Eastwood
Mail pouch hanger and shield.....G. A. Clark
Manure spreader.....L. Kniffen
Match safe.....G. E. Parker
Meter.....F. Darlington
Milk machine.....D. S. Kramer et al
Mill feeding device.....E. E. Sable
Mine door operating device.....S. T. Bailey
Mixer.....L. Libbman
Mixing vessel.....L. Libbman
Molding machine.....2 pats.....H. Tscherring
Motor control.....E. R. Carichoff
Mouthpiece. Elastic.....E. Vuillard et al
Mower reaping attachment.....J. W. Pridmore
Music leaf turner.....O. G. Painter
Music leaf turner.....S. C. Shaw
Musical instrument Mechanical.....M. D. Hosley
Musical instruments. Pneumatic coupler for.....E. S. Voiey
Needle. Embroidery.....I. Mayer
Nut Lock.....F. A. Newell
Nut lock.....C. E. Slayton et al
Nut lock and bolt lock combined.....E. Packer
Nut Split.....R. J. Simpson et al
Optical pyrometer.....H. Wanner
Optician's rule.....W. G. Allard
Ore concentration.....H. L. Sulman et al
Ore treating furnace.....A. M. Beam
Oxidizing apparatus. Rotary.....A. N. Dubois
Paper hanger's cutter board.....J. A. Hill
Paper hanging apparatus. Wall.....R. Stilwell
Paper. Manufacture of double.....G. Engelmann et al
Paper rack.....A. C. Shumaker
Pen, pencils, or other articles. Clasp for retaining.....G. L. Woodworth
Photograph exposures. Device for timing.....I. T. Hodges
Piano. Combination automatic.....N. D. Hosley
Piano or organ.....J. C. Trautwine, 3d
Piano pedal.....C. H. Hnbell
Piano players. Flap valve for.....W. C. Bowen
Pick.....C. F. Eldridge
Pie baking machine.....E. L. Sons
Pie machine.....E. L. Sons
Pie plate attachment.....T. J. Gorman
Pipe coupling.....G. A. Seaman
Pipe coupling. Train.....E. T. Hanson
Pipe wrench.....F. Sherkel, Jr
Piston and metallic packing therefor.....E. T. White
Planter and fertilizer distributor. Seed.....J. C. Johnston
Plantes. Potato.....G. P. Oates
Planter. Seed.....W. E. Anglund
Plaster. Foot.....W. H. Albach
Plate cleaning machine.....A. J. Maskrey
Plow. Reversible disk.....C. H. Deere
Power generating device.....J. R. De Mier

Power shovel.....J. Kiesler
Pressure gage.....G. Spencer
Printing machine.....W. Scott
Printing press.....R. Tonge et al
Printing press gripper attachment.....E. L. Megill
Propeller.....W. B. Hayden
Propeller. Screw.....E. V. Dixon
Pulley mechanism. Friction.....A. S. Cowan
Pump. Oil well.....M. Huber
Punch.....C. C. Goble
Punching machine spacing indicator.....J. J. Daviea
Push button. Electric.....H. F. Keil
Rail fastening.....D. E. Oids
Rail fastening.....H. T. Porter
Rail joint.....B. F. Pritchard
Rail tie and fastener.....A. C. Chenoweth
Railway cattle guard.....F. R. Strouse
Railway rail joint or coupling.....W. Barnett
Railway rails. Fastening device for securing.....J. Eichholtz
Railway signal. Pneumatic.....M. D. Moore
Railway switch.....S. Clary
Railway switch.....W. F. Cady
Railway switches, electrical or other appliances. Manipulation of.....J. L. Hoyr
Railway tie.....M. Wilcox et al
Railway tie. Concrete.....G. S. Miller
Railway tie. Metallic.....R. S. Scott
Railways. Electric automatic block system for.....G. H. R. H. & E. P. Lower et al
Raisin stemming machine attachment.....J. T. Latta
Reducing wheel.....F. L. Wolfe
Reeling device.....C. A. Hadland
Reflector. Heat.....B. C. Oblinger et al
Refrigerating apparatus.....G. T. Voorhees
Reverse mechanism.....F. C. Stinzinger
Roasting furnace.....F. Klepeiko
Roasting furnace.....C. H. Repath et al
Rocker shoe.....W. G. Miller
Rotary engine.....M. J. Hinden
Rotary engine.....M. Kleindienst
Rotary engine.....J. P. Bruyere
Rubber dam holder.....J. J. R. jo
Rule and linotype for tabular matter.....W. R. Speechley
Sand blast device.....L. Rosengarten
Sash closer. Automatic.....A. C. Van Doren
Sash cord guide.....G. D. Clark
Saw attachment for bench vises.....E. S. Mummert
Saw set.....C. Diener
Sealing jar for various articles, such as food, &c.....C. C. Hovey
Secondary battery.....I. Kisee
Separator leveling attachment.....O. G. Vold
Sewing machine embroidering attachment.....B. Johnson
Sewing machine presser foot.....A. H. De Voe
Shade and curtain hanger.....W. Nelson
Shade chair. Folding.....F. T. B. Mann
Shaving device. Safety.....O. K. mpe
Sheet folding apparatus.....C. O. Ericson
Shelf. Folding bracket.....W. L. Dunn
Ships. Means for controlling the speed of screw propelled.....E. Smethurst
Shoe fastener.....G. H. Smith et al
Shoe rack.....H. A. Ballard
Shoe. Seamless blucher.....H. Jenner
Shoes. Form for treeing, &c.....E. N. Chandler
Shutter or closure.....J. Cahill
Sign. Illuminated.....P. McDonald
Sign. Illuminated door.....S. W. Ahalt
Sign. Multiple changeable.....E. O. Wilcox
Signal and train control system. Automatic.....H. M. Davenport
Signaling. Aerial for wireless.....R. A. Fessenden
Signaling by electromagnetic waves.....R. A. Fessenden
Silo.....E. W. Armentrout
Skirt gage.....F. M. De Leon
Slimes, &c., from metal bearing solutions. Apparatus for separating.....E. L. Godbe
Socket or receptacle plug.....L. J. Cesta
Soldering iron. Self heating.....W. E. Garrett
Speed transmission. Controlling mechanism for variable.....N. T. Harrington
Spinning frame.....R. Todd et al
Sool.....G. H. Reynolds
Steak tenderer.....C. A. Deal
Step. Folding extension.....J. S. Coxe
Stocking folding board.....C. H. F. Keene
Stone rubbing or polishing machine.....G. Benisch
Stove. Gas burning convertible heating and cooking.....W. A. Koneman
Submarine signal.....A. J. Mundy
Surveying instrument.....J. Barbow
Suspender attachment.....H. Englander
Suspenders.....C. Bloomberg
Swing. Circle.....R. Garvey
Switch.....F. Volk
Syringe.....E. M. Gray
Telegraphy.....M. O. Anthony
Telegraphy. Wireless.....R. A. Fessenden
Telephone attachment.....N. E. Damico
Telephone connections.....V. Rebhun
Telephone connections. Automatic take up device for.....F. B. Long
Telephone exchange system.....E. Land
Telephone exchange system.....2 pats.....H. G. Webster
Telephone line service meter.....C. E. Scribner et al
Telephone lines. Service meter for party.....J. L. McQuarrie
Telephone receiver.....T. C. Brecht
Telephone switch.....K. Weman et al
Telephone switchboard.....E. Darnell
Telephone transmitter.....W. E. Harkness
Temperature alarm. Electric.....C. P. Hepler
Tent.....T. D. McCall
Threshing cylinder wrench.....M. Mahlen
Tickets. Apparatus for dating and checking the issue of railway or other.....G. Rainay-Walton et al
Tilting gate.....G. F. Pettit
Tire gage.....J. E. Lehman
Tire. Pneumatic.....J. K. Broderick
Tire. Vehicle wheel.....G. B. Dryden
Toilet box. Combination.....B. Study
Tool bars. Device for balancing.....J. M. Cornell

- Tool. Combination..... J. M. Sullivan
Toy- Locomotive..... D. P. Clark
Track cleaner..... B. L. Dresser
Traction coupling..... J. J. Hesser
Traction engine..... J. H. Beckner
Trolley..... F. R. Stearns et al
Trap..... G. W. Leavenworth
Trolley head..... W. F. Thompson
Truck..... H. I. Jeffers
Truck. Car..... 2 pats. W. P. Bettendorf
Truck. Hand..... O. Macfarlane
Truck. Tinting..... C. S. McGowan et al
Tubes. Apparatus for transversely corrugating..... E. Gearing et al
Turbine. Steam..... E. C. Terry
Twine cutter..... J. D. Kennard
Type writer paper feeding mechanism..... W. R. Fox et al
Type writing copy holder. Touch G. B. Heaney
Type writing machine..... W. J. Lyter
Type writing machine..... J. A. Smith
Valve..... L. J. Sommer, Jr
Valve cap..... J. V. Crone
Valve. Combination relief and back pressure..... W. Hochfeldt
Valve connected with gas hydraulic mains..... T. Redman
Valve device..... J. C. Martin, Jr
Valve. Float..... S. C. Anker-Holth
Valve for air brake systems. Triple J. H. Bleoo
Valve. Inflation..... J. E. Keller, Jr
Valve. Locomotive check. J. M. Coffelder, Jr
Valve. Steam safety. 2 pats. J. H. Millett et al
Valve. Stop..... J. H. Hopkinson et al
Valve. Throttle..... J. S. Chambers
Valve. Time..... E. L. Walter
Valve trap. Automatic..... O. C. Kingcaid
Vehicle seat protector. Adjustable..... H. E. Ellington et al
Vehicle turning gear..... J. C. Hughes
Vehicle wheel..... R. S. Bryant
Vehicle wheel..... W. Tilsner
Vehicle wheel..... J. F. De Jarnette
Vending machine discharging mechanism..... E. S. Haven
Ventilator..... L. W. Lombard et al
Vibrator..... C. E. Gates
Voting machine interlocking mechanism..... W. J. Lausterer
Wall. Foundation..... L. D. Ewing
Wall structure..... A. W. Eager
Washbowl and water receptacle. Combined..... S. J. Rosenfeld
Washing machine..... J. A. Carpenter et al
Water closet..... O. C. Kingcaid
Water elevator..... J. J. Powers
Water feed regulator..... T. G. Rakestraw
Water meter..... I. Thomson
Water or other fluid gates. Mechanism for operating..... G. S. Walker
Water or the like. Apparatus for clarifying..... B. Kniffler
Water wheel..... T. Lambeth
Water. Poultry..... C. K. Todd
Weight. Adjustable balancing J. F. Meigs et al
Well jack. Oil..... 2 pats. R. P. Abraham
Wheel..... 2 pats. R. P. Abraham
Wheels and rails. Device for increasing the adhesion between..... R. C. Lowry
Wheels to axles. Device for gripping..... L. Deutsch
Wheelwright machine..... J. W. Russell
Whist tray. Duplicate..... H. H. Rockwell
Windmill..... J. P. Muller
Window..... T. Roberts
Window frame and window sash. S. Keighley
Window screen..... S. H. Garrett
Window sill attachment..... E. A. King
Wire coiling machine..... G. B. Smith
Wire reel and stretcher..... J. C. Dains
Wire supporting standard..... W. V. Gilbert
Wrench..... C. A. Paisley
Wrench..... J. E. Ackerman
- Issued July 11, 1905.**
- MECHANICAL PATENTS.**
- Abraiding sheet..... G. Gorton
Abraiding surface..... G. Gorton
Abraiding surfaces. Machine for making..... G. Gorton
Adding and subtracting machine A. F. Hansen
Advertising machine. Automatic..... T. H. Kingscote et al
Air brake connection joint..... S. Feust
Air brake for railways. Automatic..... S. H. Heginbottom
Air moistening..... C. A. Ebsloh
Aluminum compounds. Making L. R. Keogh
Ammunition box..... H. W. Daly
Amusement device..... W. T. Smythe
Amusement device..... F. D. Kuapp
Antirattler and thill pin lock. Combined..... L. J. Oillon
Audiphone. Portable..... E. W. Schneider
Automobile..... M. J. Davin
Automobile body. Convertible..... H. F. Vogel
Automobile brake..... J. Unser
Baking pan..... J. S. Frey
Bale ties. Machine for forming wire..... E. A. Frantz
Baler frame. Hay..... J. H. Pitkin
Bar and joint bit. Combination C. W. Phillips
Bath apparatus. Electrothermal F. W. Weeks
Battery grid. Storage..... M. Heisser
Bearing box. Conical..... J. D. Alsop
Bed bottom support..... C. L. Harrell
Bed. Davenport..... R. Coopersmith
Bed, lounge, or the like..... J. W. Petavel
Beds. Elastic support for spring F. A. Zielke
Beet topping machine..... A. H. Kramer
Belt. Conveyor..... T. Robins, Jr
Belt. Moisture carrying..... G. Goldman
Bending roll..... J. J. Boax
Binder..... J. L. McMillan
Binder for papers, pamphlets, &c..... B. F. Methven
Blade. Loose leaf..... E. T. Ford
Binder. Loose leaf..... R. W. Richards
Binder. Temporary..... R. F. Hight
Blackboard..... D. W. Allen
Blank trimming machine..... J. H. Haskins
Block signal system. Automatic..... J. Lanz
Blood and the product thereof. Treating..... J. Herbabny
Blowpipe..... G. H. Brown
Boiler furnace..... J. Siebel
Boot or shoe polishing machine..... H. R. Oliver et al
Bottle..... S. J. Hyman
Bottle stopper..... W. T. Abbott
Bottle. Testing..... C. Wagner
Bottle washer..... C. Murbach
Box partition..... G. Kleuk
Box trimming machine self feed J. E. Erickson
Bracelet or belt. Automatically adjustable..... J. J. Sommer
Brake beam..... J. Green
Brooch pin fastening..... P. A. Viersen
Brooder..... G. H. Lee
Broom..... C. T. Adair
Brush. Fountain..... W. L. Payn
Bucket. Clam shell..... G. H. Williams
Buckle..... R. A. Brown
Building construction..... T. O'Shea
Bun g..... N. A. Smith
Burglar alarm..... F. C. & V. H. Kline
Button and loop clasp..... M. M. Downer
Button. Cuff or collar..... M. F. Oebbecke
Cabinet. Credit..... S. L. Henry
Cabinet. Kitchen..... H. Clark
Cam finishing machine..... G. Meyer
Cans to tipping or soldering machines. Means for feeding..... F. G. Dickerson
Car draft beam. Railway..... W. F. Richards
Car dumping mechanism..... A. Becker
Car frame. Railway..... G. Gibbs
Car. Gravity dumping..... M. Boyle et al
Car handling apparatus..... L. F. Card
Car. Metal..... C. M. Caruahan
Car wheel and making same..... W. B. Brayton
Carburetor..... H. J. E. Hennebutte
Cart. Log..... R. J. Williams
Cartridge packet..... E. G. Parkhurst
Carving machine..... W. B. Hughes
Carving machine. Automatic..... M. De Tangle
Casing spear..... E. B. Noble
Catalytic substance and making same..... R. Knietzsch
Cataract cylinder and dash pot M. A. Replogle
Center gage..... J. W. Fessler
Chair..... P. Mackey
Check strap..... E. Morrey
Chuck..... C. O. Bergman et al
Churn..... W. B. Calfant
Cigars. Combined guiding and lighting device for..... J. J. Shickluna
Circuit breaker..... J. B. Laing
Clock movement..... H. S. Prentiss
Cloth drying machine..... J. S. Johnston
Cloth Laying..... A. O. Morse
Clover buncher..... S. K. Dennis
Clutch mechanism..... W. D. Ford-Smith et al
Clutch mechanism. Friction..... M. Campbell
Coal cutting machine engine..... J. G. Patterson
Coal piling apparatus..... S. D. Warriner
Coin distributor..... C. H. Hall
Coke oven..... E. Coppee
Collar..... L. M. Wilkinson
Collar and leash. Dog..... C. D. Stahlknecht
Collar. Hameless horse..... C. P. Randolph
Controlling mechanism..... G. E. Turner
Conveyor. Portable..... G. E. Gannon
Cooker. Steam..... J. W. Bauman
Copper matts, white metal and blister copper in a single furnace. Producing R. Bagdaley
Copy holder..... S. N. McCloud
Corn popper..... S. S. Coffman
Corn shocker..... G. W. Hollister
Corn snapping and husking machine..... E. M. Jetson
Corset..... W. F. Brooks
Crane. Overhead traveling..... C. L. Taylor
Crate..... V. E. Windell
Crate. Bottle shipping..... C. W. Smith
Crushing apparatus..... M. Dickerson
Cultivator..... W. Hull
Cultivator. Cotton..... H. Barditzky
Curd agitator..... E. L. McKinnon
Curtain pole and curtain fastener J. F. Koepf
Curtain stretcher pin..... P. J. McGinnis
Cushion stuffing machine..... O. Roop
Cuspidor..... B. C. Crouse
Cutlery. Table..... C. K. Decherd
Cutting off machine..... J. J. Boax
Dampener. Sheet metal..... F. T. Myer
Dashboard. Adjustable..... H. Gottschalk
Decoy ducks or the like. Manufacturing..... J. H. S. Rimpler et al
Disk. Furrow opening..... H. C. Ham
Display rack..... I. Feldmann, Jr
Display stand and truck. Combined..... A. E. Beall
Display stand. Revolving..... D. H. Manwiler
Door catch..... W. C. Kinard
Door construction..... W. B. Gervais
Door hanger..... H. Lobel
Door holder..... A. J. Boland
Door mat. Flexible metal..... J. D. Karnaghan et al
Door. Screen..... B. S. D. S. Martin
Door securer..... M. Farrell
Door sill. Air tight..... C. J. Petit
Doubling and twisting machine..... D. Schmutz
Draft deflector..... J. Dellinger
Draft equalizer..... A. M. Kindwall
Drainer. Utensil..... W. R. Green
Drawing table..... T. King
Dressing comb..... T. M. Noyes
Drill motor. Electric..... F. E. Drake
Driving mechanism..... W. J. Bell
Drum..... E. Boulanger
Drying apparatus..... G. Stiff
Dust, water and mud guard. Combined..... J. I. Maguire
Dye. New azo..... A. Thaus
Dyeing..... B. Richard
Dyeing machine..... R. P. Smith
Ear muff..... H. Smith
Elastic tired wheel..... E. Kenp
Electric circuit closer..... M. Guett
Electric furnace..... C. L. Saunders
Electric machine. Dynamo..... D. Balachowsky et al
Electric motor..... B. G. Lamme
Electric motor and controlling means therefor..... B. G. Lamme
Electric motor controller..... F. Wright
Electric switch..... W. E. Dow
Electrical controller..... R. P. Jackson
Electrical meters. Construction of..... O. T. Blathy
Electrode. Medical battery..... K. L. V. Curry
Elevator..... M. Fullenlove
Elevator door. Automatic..... J. H. Morris
Elevator winding machine..... M. Turnbull
Elliptic spring..... J. J. Flaunagan
Embroidering machine..... R. Zahn
End gate..... C. R. Holt et al
End gate. Wagon bed..... W. F. Wagner
Engine starting means. Gas..... W. J. Bell
Engines. Means for balancing compound..... E. P. Clapp
Engraved plates when printing therefrom. Wiper for cleaning the surfaces of..... F. E. Blaisdell
Envelop..... S. J. Mathews
Excavating apparatus..... W. J. Newman
Excavating machine..... A. N. Cross
Excavating machine..... C. C. Jacobs
Excavating machine. L. W. & H. W. Hoadley
Explosive composition..... H. Boyd
Fare register..... 2 pats. W. G. Kirchhoff
Farm implement..... W. Daly
Fastening..... J. Bagnall
Feet. Device for relief of club or flat..... W. M. Scholl
Fence tie..... F. W. Reed
Fertilizer distributor..... C. Johnson
Fiber material. Apparatus for feeding strips of short..... R. Kron
File. Letter or bill..... T. P. Loblaw
File. Paper..... J. N. Talbott
Filter. Drum..... E. Fullner
Filtering apparatus..... J. S. Milne
Fire apparatus..... 2 pats. B. B. Briggs
Fire escape apparatus. Self saving..... F. Stabe
Fireproof ceiling and floor..... J. Weber
Fireproof structure..... F. L. Saimo
Fish catching apparatus..... M. Ward
Fish hook..... V. Gebhardt
Flagstaff..... P. H. & F. F. Downes
Flat iron heater..... A. V. Maniachi
Flax breaking machine..... G. H. Ellis
Floor grinding and polishing machine..... G. Lyon
Floor or wall covering. Wood..... W. Gutwasser
Flue cutter and expander..... S. W. Blevins
Fluid gage..... 4 pats. M. Martin
Fluid operated gage..... M. Martin
Fly exterminator..... R. L. Park et al
Food. Article of..... A. A. Faust
Fuel burner..... T. W. Phillips, Jr
Fuel from seaweeds. Manufacturing..... D. M. Balch
Fungicide and making same..... F. J. Smith
Furnace charging apparatus..... R. Bagdaley
Furnace charging device..... J. J. Boax
Furnace grate..... A. Wilkinson
Fusee..... W. E. Matthew
Gage or similar tool..... C. J. W. Hayes
Garbage crematory. Portable..... I. D. Smead
Garment fastener..... M. E. Kintz
Garment holder..... F. J. Hamilton
Garment supporter..... reissue. F. Ferguson
Gas burner..... A. H. Humphrey
Gas burner for singeing machines..... H. H. Skevington et al
Gas generating apparatus..... L. Guenot, Fils
Gas generator. Acetylene..... T. Lindenberg
Gas purifying apparatus. Centrifugal..... E. Thiesen
Gate..... H. H. Gorton
Gear. Speed changing..... T. W. Jenny
Gear. Speed changing and transmission..... I. H. Pleukharp
Gearling. Transmission..... E. Hill
Glass fastener. Plate..... W. R. Bickford
Glass machine..... L. P. Holston
Governor..... F. G. Hobart
Grain drill..... O. Schutt
Grass cutter..... F. A. Nelson
Grinding machine..... L. F. Brenning
Grinding mechanism..... J. Nizam
Gun sighting apparatus..... E. Ternstrom
Gyroscope..... H. Anschutz-Kaempfe
Hame fastener..... E. G. Bennett
Hams, bacon, or the like. Machine for branding and polishing..... R. Wirth
Harness. Wire ribbed..... W. Dann
Harrow and sulky. Combined..... D. H. Brown
Harvester. Corn..... W. T. Poff
Harvester. Cotton..... J. S. Watson
Harvester guard..... J. Lutin
Harvesting machine thill attachment..... J. W. Latimer
Hay and stock rack..... C. L. Clark
Heat control. Automatic electric..... J. I. Ayer
Heating apparatus..... M. Rapp
Heating system. Hot water..... H. A. Bolze
Hedge trimmer..... E. J. Nolting
Hinge..... G. H. Davis et al
Hoist and carrier..... J. F. & G. J. Kropp
Hose coupling..... J. D. O'Brien
Hose reel bracket..... G. F. Riecken
Hub and bearing. Wheel..... H. M. Butler
Hydrometer..... H. M. Beck et al
Incubator..... G. H. Lee
Inhaler..... A. H. Ramey
Ink well..... F. C. Luethy
Insulating block for electric light canopies..... I. J. Parker
Insulator bracket for telephone poles, &c..... K. G. Springer
Internal combustion engine..... J. W. Seal
Internal combustion motor..... C. A. Riote
Ironing machine..... H. A. Utley
Joint..... D. D. Palmer
Journal box..... T. H. Symington
Journal box dust guard..... 2 pats. T. H. Symington
Journal box lid..... J. S. Patten
Key opening can..... C. Jovignot
Knitting apparatus. Dough..... J. Nazel
Knitting machine pattern mechanism..... F. B. Wildman
Knitting machine pattern mechanism..... F. B. Wildman et al
Knitting machines. Thread changing mechanism for circular..... E. A. Hirner
Lamp. Electric arc..... M. A. Stogsdill
Lamp. Electric display..... H. J. Gille
Lamp. Flash..... G. H. Saunders
Lampsocket. Incandescent electric..... L. C. Gollatz
Lamps. Mantle holder for incandescent..... T. Brabson
Lamps. Manufacturing incandescent electric..... H. Casassa
Lantern..... 2 pats. W. S. Hamm
Ledger sheet and monthly statement filing holder..... A. Inglis-Donnell
Level..... A. P. Hall
Level and plumb..... E. R. Brodton
Lifting jack. Pneumatic..... F. E. Ten Eyck
Lime holder..... L. B. Tompkins
Linotype machine..... R. J. Foster
Locomotive boiler..... J. F. Sweeney
Loom attendance. Apparatus for facilitating..... F. G. Cobb
Loom filling tension device..... A. L. Scarborough
Loom shuttle..... reissue. C. B. Webster
Loom weft replenishing mechanism..... F. O'Donnell
Loom weft replenishing mechanism..... reissue. E. D. Thayer
Looms and the appliances used therein. Production of heddles for use in..... T. E. Dean
Lubricator..... W. B. Featherstone
Magnetic separator. Electrostatic..... H. M. Sutton et al
Mail bag delivery device..... P. J. A. Schuur
Malt house and malting apparatus..... W. P. Rice
Mandre or arbor. Expanding..... C. J. Jones
Mandrel swing for bending dies..... J. J. Boax
Mantles. Heating to incandescence refractory..... J. Herczeg
Manure spreader..... L. Kniffen
Marker. Personal wear..... J. B. Spencer
Match safe..... B. F. Fulham
Measuring device. Tailor's..... G. B. Kaiser
Measuring instrument. Electrical..... F. Conrad
Measuring, protecting, and display means for fabrics..... A. E. Standen
Meat products. Curing..... W. Eppinger
Mechanical motor..... E. Putnam
Metal. Expanded..... J. Kahn
Metaliferous materials. Purifying and nodulizing..... T. C. King
Metallurgical furnace..... G. H. Benjamin
Mine ventilation..... F. C. Weber
Molding machine..... C. Herman
Mosaic work..... H. A. Litz
Muffler..... P. J. & G. J. Ihrig
Music holder..... J. Hoffman
Musical instrument..... P. Wuest, Jr
Musical instrument valve. Pneumatic..... E. de Kleist
Nail trimmer..... H. La Casse
Nitrocellulose or similar substances. Making compounds of..... D. Bachrach
Nozzle. Locomotive exhaust..... J. K. Booth
Nut and pipe wrench..... K. Peterson
Nut lock..... D. A. Frick
Nut lock..... H. E. Clapper
Oils. Chemically modifying..... E. Meusel
Ordnance and firearm..... F. K. Young et al
Ore and gathering gold or precious metal dissolved in the employed mercury. Treating..... G. M. Rice
Ore concentrator..... H. H. B. L. E. & W. E. Scovell
Packing. Hydraulic..... G. J. Bryen
Pail. Milking..... P. H. Sanger
Paper cutting machines. Counting machine for..... M. McCallum
Paper feeding device..... M. B. Ferguson
Paper hanger's pedestal..... J. R. Brown
Papers, pads, tickets, cards, &c. Holder for..... A. A. Low
Peach splitting and pitting machine..... S. J. Dunkley
Penholder or pencil finger guard..... W. A. Whitehouse
Phonograph record cylinder..... E. N. Dickerson
Photograph machines. Loading device for automatic..... G. N. Pifer
Pianissimo device..... W. & C. Kater
Piano action bracket..... J. Davenport
Piano frame..... H. Hornbeck
Piano or organ pedal lever mounting..... L. Lemieux
Piano plate..... J. Davenport
Piling. Metal sheet..... H. Wittekind
Pillow sham holder..... A. Guth
Pin..... C. F. Markham
Pipe clean out fitting. Soil..... L. B. Dozier et al
Pipe coupling. Swivel..... A. J. Hagemann
Pipe wrench..... H. B. Best
Plane..... G. Dechant
Planers, &c. Truing guide surfaces of..... S. McMillen
Plow..... E. R. Leshner
Plow disk bearing..... W. G. Daniels
Poison vault..... W. S. Small
Pompador comb..... H. A. Austin
Portable house..... W. M. Ducker
Pot lid holder or wall pocket. Wire..... G. P. Vosbrink
Potato cutter..... H. H. Tomlinson
Press..... M. Sklovsky
Printer's quoin..... L. L. Rogers
Printing mechanism. Adding machine..... C. Wales
Printing. Photomechanical..... H. L. Reckard
Printing press..... L. A. Brod
Printing press web supplying device..... H. A. W. Wood
Projectile..... J. Shearman
Propeller. Vessel..... J. Saunders, Jr
Protecting box or casing..... H. W. Clark
Protractor..... W. L. Thomas
Pulp from sawdust. Mechanical preparation of wood..... H. C. Pfeiffer
Pump..... W. J. Pennock
Pump valve..... B. C. Woodford
Pump. Variable stroke..... G. W. Sinclair
Pumps. Wearing ring for centrifugal..... 2 pats. E. Meden
Pumping jack..... G. Pitcher
Punching device. Sheet metal..... J. Wilderman
Radiator. Corrugated..... W. E. Roys
Rail joint..... J. Hubbard
Rail joint..... T. & L. Slingland
Rail joint and bond. Combined..... B. Wolhaupter
Rail. Third..... E. R. Brodton
Railway signaling. Electric circuits for..... H. W. Spang
Railway switch. Automatic electric..... W. D. Woolley
Railway tie and rail fastening..... E. C. Brown et al
Railway traffic controlling apparatus..... T. H. Patenall
Rand pressing die..... J. & J. A. Barbour
Razor holder and sharpener..... B. A. Robeson
Refrigerator..... G. A. Masters
Refrigerator..... A. H. Merrill
Regenerator. Water sealed..... G. Walzel
Rein guard..... T. E. Schumpert

Restraint device.....J. Gaiter
Reversing and speed changing mechanism.....R. Symmonds, Jr
Rollers. Making.....S. Crump
Rolling disk wheels or similar articles. Apparatus for.....A. de Fontaine
Roofing material.....R. R. Walker
Rule and square Combined.....J. Irving, Jr
Sample case box or tray.....W. H. Clements
Sand blast apparatus.....W. R. King
Sanitary shield.....H. E. Hudson
Sash holder.....J. B. P. Michaud
Sash lock. Ventilating.....W. A. Nichols
Saw swage.....J. H. Brown
Screen.....F. C. Wright
Self lubricating wheel.....S. G. Porter
Separator.....D. C. Ruth
Sewed signature.....D. G. Smyth
Sewing machine attachment.....J. T. Bearden
Sewing machine binder.....H. P. Steward
Shaft support.....H. Morton
Sharpening and repairing machine. Drill.....J. J. Brossoit
Sheet metal. Means for removing superfluous metallic coating from.....2 pats.
Sheet metal. Removing superfluous metallic coating from.....2 pats.
Shoe.....O. S. Fellows et al
Shoe case.....J. McBrearty
Signaling and electropneumatic train control system. Electric.....J. A. Whyte
Signaling apparatus.....G. C. Graham
Signals. Electric apparatus for producing sound.....C. H. O'Brien
Sink cover.....A. Beauchemin
Sleeve protector.....H. Gardner
Smoke preventing means.....H. H. Hughes
Socket joint.....W. Burke et al
Soldering end seams of cans. Machine for.....2 pats.
Sound record locating device.....N. C. Durand
Sound reproducer.....T. H. Macdonald
Speed mechanism. Variable.....J. Parker
Spindle bobbin clutch. Rotatable.....W. E. Allen
Spindle bobbin driving means. Rotatable.....F. H. Thompson
Spinning bobbins. Apparatus for making.....I. F. Peck et al
Spinning or twisting apparatus. Ring.....W. T. Carroll
Spring construction.....W. Ott
Spring wheel.....C. M. Tipton
Stairways. Grated step for traveling.....D. M. & T. R. Quay
Station indicator.....J. B. & J. L. Henderson
Stove jointer.....O. A. Sowers
Steel trap.....D. Rupp
Stereotype plate casting and finishing machine.....B. F. Curtis
Stone building block. Artificial.....H. Kline
Stool. Store.....O. E. Bolling
Storage battery. Electric.....A. Meister et al
Stove service apparatus.....J. J. Crist
Stovepipe thimble.....R. T. Holton
Strainer and separator.....J. G. Anson
Strainer. Starch or jelly.....L. A. Mangold
Stringed instrument with vibrating resonance board suspended within the resonance box.....C. F. J. Appelberg
Suppositorial bougie.....S. L. Kistler
Surgical appliance.....A. Breslin et al
Suspension attachment. Adjustable.....F. L. Gregory
Swinging seat or hammock.....W. S. Bowie
Switch safety lock. Split.....G. Auspos et al
Syringe.....K. Schneider
Table lock. Pedestal extension.....E. Tyden
Tachometer.....G. Saaler
Tank heater.....W. Dixon
Taping machine.....F. A. Sandstrom
Target.....T. S. Ford et al
Telegraphic transmitting apparatus. Tape controlled.....D. Murray
Telegraphy and transmission across space. Wireless.....A. Artom
Telegaphy. Wireless.....W. S. Hogg
Telephone lock out mechanism.....T. Matheny et al
Telephone switchboard.....M. C. Burt
Telephone system.....3 pats.
Thermal cut-out.....T. Varney
Thermostat.....J. D. Gould
Threshing and straw cutting machine.....C. J. Smith
Ticket case.....R. D'Orn
Ticket collecting apparatus.....R. L. Des Annes
Ticket. Railway cash fare receipt passage.....W. C. Pope
Timber transferring machine.....G. M. Hinkley
Timber treating apparatus.....P. H. Gerhardt
Tire. Pneumatic.....W. F. Stearns
Tire. Pneumatic.....D. J. May
Tires. Machine for manufacturing pneumatic wheel.....A. E. Vincent
Tongs.....C. L. Dunham et al
Tool. Combination.....J. H. Priestley
Tool. Pneumatic.....J. C. Campbell
Toy. Educational.....H. Robinson
Trace carrier.....J. Kiernan
Track brake.....N. E. Kuntzen
Track switch. Overhead.....E. Mari
Train stops. Air valve for safety.....H. G. Sedgwick
Truck.....E. J. Simon
Tubing making machine.....C. Thibodeau
Tunnel erecting apparatus.....E. W. Moir
Tunneling shield.....E. D. Wright
Tunneling shield.....3 pats.
Turbine.....8 pats.
Turbine and means for governing same.....R. H. Goldsborough
Twisting and waxing machine. Thread.....A. H. Forsythe
Type lines. Producing justified.....O. Mergenthaler
Typewriter table.....G. W. Donning
Typewriting machine.....F. N. Wagner
Typewriting machine.....E. L. Foster
Typographic machine.....O. Mergenthaler et al
Universal joint mechanism.....L. P. Valiquet
Unloading mechanism.....C. R. Maples
Valise and tent. Combined.....A. C. M. Finlay
Valve.....J. C. Willis
Valve. Automatic regulating.....C. H. Caspar
Valve gear.....W. P. Reynolds
Valve. Pressure reducing and regulating.....G. S. Willits
Valve. Pressure regulating.....F. C. Few

Valve. Steam engine.....T. Dugan
Vapor burner.....C. C. Todd
Vaporizer.....E. W. Baillentine
Vehicle top.....A. M. Beebe
Vending machine. Coin controlled.....J. L. Simmons
Vending machine coin detector.....C. Bigelow
Vertical boiler.....T. Suzuki
Veterinary apparatus.....S. T. Bailey
Voltage regulator.....P. M. Lincoln
Wagon brake coupling.....J. E. Smart
Water screen and filter.....S. Stout et al
Water tube boiler.....G. Y. Bonus
Watering fountain. Stock.....J. H. Thornburg
Web rolls. Handling of.....H. A. W. Wood
Weed cutter.....E. M. Lambson
Weed extirminator.....M. Schmitt
Weed turner.....W. M. Ellsworth
Weighing apparatus.....W. S. & C. I. Corby
Wheel.....J. W. Meixell
Wheel guard. Vehicle.....B. E. Thompson
Window box. Knockdown.....A. Assorati
Window screen.....2 pats.
Window ventilator.....H. O. Reese
Wire receptacle. Woven.....C. S. Baron
Wrench.....B. S. Boggs
Yoke attachment. Neck.....L. T. Gucker
Zinc from ores. Removing or recovering.....W. Stewart
Zither bowing device.....J. von Peichl

DESIGNS.

Automobile body.....O. E. Barthel
Badge.....C. C. Fearing
Bodkin.....E. S. Simons
Book mark.....E. A. Ekstrom
Button rim.....G. E. Schweig
Carriage body.....C. E. Dnyea
Coin actuated machine casing.....2 pats.
Condiment holder.....E. C. Hurlbert
Fabric. Textile.....2 pats.
Mount.....J. W. Kemp
Sign. Cigar dealer's.....E. S. Cheney
Sign. Jeweler's.....O. Wurscher
Statuette.....R. F. Outcault
Vibrating machines. Stand for automatic.....M. Borsodi

Issued July 18, 1905.

MECHANICAL PATENTS.

Acid. Monoglycol ester of salicylic.....F. Hofmann
Amusement apparatus.....C. Alonso-Perez
Animal trap.....E. Firuhaber
Automatic gate.....A. Noe
Automobile attachment.....E. G. Nicewaner
Awning.....C. W. Linder
Awning. Frameless.....S. C. Crowe
Baling press. Horse power.....M. C. N. xou
Ball or bullet.....H. C. Aspiwall
Ballot box.....C. B. Gilmore
Basket.....M. L. Porter
Bearing. Compensating knob.....H. G. Voight
Bed bottom.....H. R. Hervey
Bed. Invalid's.....E. A. Hall
Bed. Sofa.....J. A. Cumia et al
Bedstead.....A. A. Nees
Belt tightener.....A. L. Herkenhoff
Binder cleat.....J. R. Barrett
Binder or loose sheet holder. Temporary.....H. F. Bushong
Blast furnace.....N. M. Langdon
Bobbin and spindle connector.....J. Roney et al
Boiler baffle. Steam.....J. S. Hammerslough
Boiler superheater. Steam.....F. J. Cole et al
Boilers. Device for automatically filling steam.....T. M. Wilkins
Book carriage.....S. A. Marsh
Book stack. Sheet metal.....P. M. Wege
Books open. Device for holding.....W. Maguire
Bottle. Non refillable.....R. Dunne
Bottle. Non refillable.....E. P. Dole
Bottle valve guard. Non refillable.....E. P. Dole
Bottles. Device for preventing the refilling of.....M. J. Segal
Bottles. Weighted ball for non refillable.....J. S. Wright
Bottling apparatus. Liquid.....C. A. Hopkins
Bracelet.....J. E. Campbell
Brake.....C. E. F. Burnley
Braking device.....C. L. Horack
Breach mechanism.....S. A. S. Hammar
Brick press.....V. Then
Briquetting machine.....G. W. Rigby
Brush with bristles movable in all directions.....H. Poilmann
Building block.....W. J. Sterling
Bung.....H. Schmidt
Button. Tufting.....A. A. Freschl
Cake mixer.....A. A. Warner
Calendar.....H. E. Shedd
Camera plate holder. Photographic.....R. J. & J. A. London
Cane mill.....G. M. Lear
Cane. Transformable walking.....J. A. Adamson
Car brake. Street.....J. Hastreiter
Car clamping device for car unloading machine.....G. E. Titcomb
Car coupling.....W. F. Richards
Car coupling.....F. H. Norwood
Car draft and buffing structure. Railway.....W. F. Richards
Car haul.....F. V. Hetzel
Cars or the like. Armored protector for.....J. J. Hutto
Cars. Power shovel for loading box.....J. Olson
Carbon tetrachlorid. Making.....J. L. Danziger
Carbon tetrachlorid. Purifying.....J. L. Danziger
Carbureter.....E. B. & L. S. Cushman
Carbureter.....G. Houlon
Carbureter.....A. E. Schaaf et al
Carbureting machine.....S. S. Poole
Castrating, docking, and earmarking sheep, cattle or horses. Instrument for.....J. Dignan
Chair.....H. C. Bunnell
Check or coin controlled apparatus.....J. L. McCullough
Cheese cutter.....B. Blood
Chuck.....J. C. Potter et al
Chute. Coal.....A. L. Koch
Circuit breakers. Time limit controller for.....E. M. Hewlett

Cistern or well cleaner.....L. Leggett
Clock. Coin freed alarm.....S. Krauss et al
Clothes drier.....B. B. Moss
Clothes line clamp.....G. Pahl et al
Clothes line fastener.....E. Minetti
Clothes pin.....S. C. Whitlow
Clutch. Friction.....A. L. Herkenhoff
Coal tipple.....J. Hughes
Cock stop and waste.....G. M. Page
Coffee urn.....C. A. Robertson
Coiffure retainer comb.....G. L. Winn
Collar fastener. Plover.....P. W. McFall
Compasses.....J. Pilsatneeks
Compo board. Assembling machine for forming a continuous.....G. S. Mahew
Compo board. Making.....G. S. Mayhew
Concrete conduit trimming machine.....J. Kohler
Controller. Double.....C. I. Earll
Converter.....R. Baggeley et al
Conveyer.....I. Peabody
Conveyer chain guide.....C. Piez
Conveying apparatus.....A. McDougall
Copy holder.....J. Cook
Counter guard.....J. S. Auerbach
Cover. Receptacle.....G. D. Glaser
Cultivator.....W. S. Sobe
Cultivator.....W. S. Graham
Current collecting shoe.....W. M. Brown
Current motor. Alternating.....M. Milch
Curtain pole.....J. Hoffmann
Curtain pole and fitting.....E. B. Orr
Curtains, &c. Fastening for.....F. J. Henry
Cuspidor.....H. J. Rehorn
Dam.....L. E. Rice
Denture. Artificial upper.....L. L. White
Disintegrator.....W. Cox
Display card.....A. Bauer
Display rack. Chair.....H. J. Montgomery
Display stand. Shoe.....T. Harding et al
Door fly scarer attachment. Screen.....E. J. Gould
Door frame for air tight doors.....S. P. Stevenson
Door. Grain.....G. W. Strong et al
Door hanger.....T. Leonard
Door hanger. Sliding.....H. J. Weiss
Door opening or closing device. Automatic.....L. Ives
Dough brakes. Revolvable table for.....A. C. Wank
Drafting table.....G. Ring
Dredge box.....C. M. Symonds
Drill spindle.....R. G. Henry et al
Drilling rigs. Steam motor for operating tools in.....F. S. Barkeley
Drinking fountain.....J. F. J. S. Jr. & A. L. Bennington et al
Driving mechanism.....C. M. Armstead
Drum.....G. Harris
Drum mill.....R. Beneke
Dye and making same. Bisulfite compound of a tetrazo.....A. Otto
Dynamo support.....W. F. Richards
Electric battery.....P. J. Kamderdyk
Electric brake.....W. G. Price
Electric cable soldering nipple.....H. E. Procnier
Electric light fitting.....J. G. Irving
Electric machine. Dynamo.....F. A. Mott
Electric switch.....M. Guett
Electrical switch and operating mechanism therefor.....W. F. Richards et al
Electrode. Arc light.....F. O. Vogel
Elevator safety device.....R. H. Gaylord
Engine controlling mechanism. Explosive.....J. F. Merkel
Engine sparking igniter gear. Explosive.....E. Westman
Engines. Drill striking mechanism for rock drilling.....L. Durkee
Envelop.....J. W. Kuebler
Evenser. Horse.....J. J. Larson
Exhaust mechanism. Variable.....C. L. Pagenhart
Extension table.....J. W. Lindow
Eyeglasses.....L. F. Adt
Eyeglasses.....G. A. Stiles
Eyeglasses, &c. Lens holder for.....G. H. Winslow
Eyelet. Shoe.....J. A. Baker
Eyelets with flexible material. Method of and apparatus for covering.....P. R. Glass
Faucet. Lock.....C. C. Connell
Feed water heater.....T. Suzuki
Fence. Folding wire.....W. C. Clay
Fence post.....C. W. Pierce et al
File. Bill.....2 pats.
Filing device.....G. H. Maurer
Filter and cleaner.....A. C. Wiechers
Filter. Water.....M. N. Lynn
Filtering apparatus. Water.....J. C. Barker
Fire apparatus.....S. A. A. Stenberg
Fire escape. Portable.....D. E. Landis
Fish handling apparatus.....A. R. Rogers
Flanging machine.....J. H. Vanderslice
Flower holder.....C. E. H. Jacoby
Fluid brake.....R. D. Whiting
Flushing machine. Street.....L. F. Ottofy
Food product preparing apparatus.....A. T. Jones
Food products. Preparing.....A. T. Jones
Footwear.....C. T. Adams
Formaldehyde candle.....A. Baner et al
Foundation.....H. Ericsson
Friction device.....G. Westinghouse
Friction top can.....E. W. Carnes
Friction top can.....3 pats.
Fruit gatherer.....J. G. Hodgson
Fruit picker.....M. L. Porter
Fuel distributor.....C. Monroe et al
Furnace.....N. W. Lundy
Furnace.....W. H. Chappell
Furnace feeder.....W. H. Curtis
Furnace feeder. Automatic.....H. G. Cox
Furnace for treating sheet iron and steel.....H. H. Goodsell
Furnace grate.....F. J. Wetzel
Fuse. Electrical.....F. G. Jones
Game apparatus.....H. O. Keferstein
Garment holder.....J. W. Cairns
Garment supporting clasp.....J. F. Atwood
Gas. Apparatus for the generation of.....B. E. Eldred
Gas burner.....J. F. Kraus
Gas burner fitting.....E. E. Grove
Gas furnace. Regenerative.....C. Ellis
Gas generation.....B. E. Eldred et al
Gas generator.....J. J. Nix
Gas generator regulating device.....O. S. Backus
Gas producer apparatus.....C. Ellis
Gas regulator.....C. W. Henson
Gas retort charging machine.....H. J. Toogood

Gasket.....D. C. Blanchard
Gear. Power transmission.....E. J. Swedlund
Gear tooth generating machine.....O. J. Beale
Gem setting.....G. W. Dover
Glass measuring and cutting mechanism.....E. Rogers et al
Glass tank.....T. Owens
Glass vessels. Apparatus for fusing the rims of.....H. E. G. Uhlig
Grader. Road.....T. F. Bryan
Grain drill drag bar connection.....H. J. Case
Grapple.....D. Auer
Grinding machine.....H. G. Iseberg
Grinding mill.....M. S. Johnson
Gun. Breech loading.....H. F. Barning
Gun. Rapid fire.....C. M. Clarke
Gyroscopic control apparatus.....F. M. Leavitt
Hair pin.....A. N. Baker
Hame fastener.....P. N. Nelson
Hammers. Air distributing device for pneumatic forge.....C. F. W. A. Oetting
Handhold. Electrically heated.....F. S. Davis
Harvester.....J. W. Burtless et al
Harvesting and husking standing corn machine for.....W. H. McKittrick
Harvesting outfit. Steam combined.....B. Holt
Hay carrier.....P. A. Myers
Hay fork track bracket.....F. W. H. Keller
Hay loader.....A. Arter et al
Heating apparatus.....R. Sturges
Heating boiler. Building.....J. B. Bernhardt
Hoist.....E. Y. Moore
Hoisting bucket.....W. H. Beckett
Hollow mill. Adjustable.....H. K. Porter
Hollow mill. Expandable.....H. K. Porter
Hose clamp.....H. N. Evans
Hose coupling.....S. G. Wright et al
Hose coupling.....R. F. Settlege
Hot water circulating system.....J. F. McElroy
Hub brake.....G. Gelait
Hydrant.....D. F. O'Brien
Identification receipt. Accident.....T. F. Reardon
Index.....R. A. Simonson
Indicator and advertiser.....C. H. Townsend
Insect trap.....G. W. Clark
Internal combustion engine.....C. E. Sargent
Iron. Treatment of chromiferous.....H. H. Campbell
Jack.....W. B. Templeton
Jar holder. Fruit.....J. T. Welke
Jewelry box or case.....E. N. Lorscheider
Key opening can.....J. G. Hodgson
Knitting machine.....G. D. & W. C. Whitcomb et al
Knitting machine needle holder.....E. Tompkins
Knobs. Apparatus for producing seamless.....K. Barthelmes
Knobs. Manufacturing seamless.....K. Barthelmes
Knockdown chair.....J. R. Shackelford
Labeling machine.....H. Miller
Labeling machine. Bottle.....A. O. Gutsch
Labeling mechanism.....D. F. Bremner, Jr
Lacing shoe uppers. Means for temporarily.....W. A. Smith
Ladder.....J. McDonnell
Lamp. Electric arc.....M. H. Baker et al
Lamp. Gasolene.....B. A. Estep
Lamp. Vapor electric.....R. Knch
Lantern.....D. S. Williams
Lantern. Signal.....R. Black
Lantern. Signal.....C. W. Smith
Lathe gearing.....B. M. W. Hanson
Lawn trimming tool.....W. N. Doan
Leader pipe.....R. Madson
Leaf metal. Means for rolling up.....O. Blankmeister
Leather and rubber sheet or strip.....J. Steinharter
Leather stock. Making pasted.....P. Belle
Leather with rubber. Apparatus for coating.....J. J. Steinharter
Level. Illuminated spirit.....R. O. Stetson
Level. Spirit.....P. Kaufmann
Lifting jack.....S. R. Payne
Linotype machine.....P. T. Dodge
Liquid fuel burning apparatus.....W. Cunningham
Locks. Electrically operated keeper for door.....A. Arens et al
Loom. Circular.....A. B. Laski
Loom. Haircloth.....4 pats.
Loom head motion.....2 pats.
Loom warp stop motion.....N. Boivert
Loom warp stop motion mechanism.....A. E. Benson
Looms. Thin plate detector for.....G. S. Cox
Lubricator.....reissue.....J. H. Bagwell
Lubricator.....O. G. Kipp
Luggage carrier.....C. E. Malmberg
Luggage carrier.....J. J. Rischard
Machinery. Automatic safety stopping attachment for.....E. L. Branson
Magnetic brake.....A. C. Eastwood
Mail box.....G. E. Lofland
Mail box signal.....P. C. Smith
Mail chute closure.....J. W. Cutler
Mail delivering apparatus.....2 pats.
Massage apparatus.....2 pats.
Massaging implement.....H. F. Waite
Mechanical movement.....R. T. Bell et al
Medical or like purposes. Injector for S. Noah
Medicine receptacle.....R. B. Mimmack
Melting furnace.....W. E. Williams
Melting locomotive.....A. H. Korsmeyer
Mining machine. Coal.....C. J. Smith
Mitering machine.....J. A. Peer
Motor control system.....J. B. Linn
Motor control system.....W. O. Mundy
Motor control system. Pneumatic.....F. E. Case
Motors. Fuel controlling means for internal combustion.....A. Gosse
Mower attachment. Lawn.....J. W. Bonsall
Muffler. Exhaust.....B. Crawford
Musical instruments. Pneumatic action for.....F. W. Wood
Musical instruments. Tune sheet mechanism for automatic players of keyboard.....A. Maxfield
Necktie holder.....G. S. Fogarty
Nut.....A. W. Clausen
Nut and bolt. Threadless.....H. J. Weiss
Oil and moisture from materials. Apparatus for extracting.....S. E. Wilson
Oil burner.....W. S. Jenkins
Oil can.....F. W. Clow et al
Oil press.....D. J. Heiderlich
Ophthalmic chart cabinet. Pneumatic.....L. O. Bisang

Ore concentrating table..... W. G. Dodd
Ore grinder..... F. J. Hoyt
Ore or rock crusher..... E. S. Moulton
Ovens. Means for charging bread into and withdrawing it from bakers..... W. Lawrence
Overweight or underweight indicator and computer..... J. Barry et al
Package. Shipping..... A. Fouts
Package. Shipping..... A. Fouts
Packing..... A. B. Schier
Packing..... G. M. Kneuper
Packing..... J. H. Bricker
Paint composition..... R. H. Goddin
Pants and garter attachment..... A. F. & S. F. Stein
Pants with garter attachment device. Knee..... A. F. & S. F. Stein
Paper articles. Machine for making..... F. J. Motz
Paper bag machine..... W. A. Lorenz
Paper forming and drying machine..... G. W. Nistle
Paper or other fabrics. Reeling machine for..... W. H. Waldron
Parallel lines. Protective system for..... L. Wilson
Pavements. Wooden block for..... F. J. Warren
Pen. Fountain..... T. P. Ambrose
Pen. Reservoir..... W. W. Sanford
Perambulator, mail cart, or the like..... A. C. Barratt
Phonograph repeating attachment..... E. L. Crabb
Pianos, safes, &c. Hoist for..... R. M. Hill
Pillow. Pneumatic..... L. F. Doellinger
Pitman connection..... G. H. Ellis
Plate and attaching device therefor..... W. D. Williams
Plug and receptacle..... H. R. Sargent
Portable rack..... L. A. Friend
Poultry picking implement..... A. Weiler
Power transmitting mechanism..... T. L. & T. J. Sturtevant
Power transmitting mechanism..... A. L. Herkenhoff
Preserve can..... H. Bohm
Printing plates. Means for locking..... A. O. Taylor et al
Printing surface cleaning composition..... F. Forster
Printing surfaces. Cleaning..... F. Forster
Propeller..... J. D. Fullerton
Propeller..... J. Huber
Pulp molding machine..... G. R. Ward
Pump. Mercury..... S. E. Flichtner
Pump piston..... R. Addison
Pump platform..... P. M. Wolf
Puzzle..... C. D. H. Blakeney
Pyrotechnical grasshopper..... E. H. Wagner
Rack..... H. F. Schanwecker
Radiator. Sheet metal..... W. R. Kinnear
Rail brake..... M. Hattery
Rail joint..... R. H. Ireland
Rail joint..... T. A. Johnston et al
Ralls in situ. Portable apparatus for dressing the surfaces of..... M. Woods et al
Railway brake apparatus..... G. T. & L. Woods
Railway gate..... A. Berg
Railway rail..... E. F. Kreil
Railway rail..... 3 pats. A. A. Strom
Railway rail brace..... 2 pats. H. H. Spontenburg
Railway rail joint..... W. A. Zelch
Railway switch mechanism..... 3 pats. H. B. Nichols
Railway tie..... A. W. Yocum
Railway ties. Lifting jack for spiking..... G. Comi
Ratchet wheel mechanism..... A. Benoit et al
Razor..... C. L. Girard
Razor blade holder. Safety..... L. Heckel
Razor. Safety..... L. B. Gaylor
Reaper and mower..... T. R. Vizard
Refrigerating apparatus..... 2 pats. R. Whitaker
Rein holder..... G. E. Bundick
Retaining ring..... M. C. Neuner
Retort discharging apparatus..... L. Degrand
Revolvers or other firearms. Application of electric lights to..... E. C. I. Cailliez
Rheostat..... J. W. Howell
Rheostat. Automatic..... C. J. Sturgeon
Roasting furnace..... J. A. Anker et al
Rock drill..... G. S. Power
Rock drilling machinery. Apparatus for allaying dust in connection with..... W. C. Stephens
Rocking chair attachment..... E. E. Motter
Rope clamp..... J. McKenney
Rose or escutcheon plate. Compensating..... C. J. Caley et al
Rotary engine..... H. M. Lofton
Rotary engine..... D. D. Hardy
Rotary engine..... J. R. Lewis
Rug stiffening device..... F. E. Klindgen
Ruling machine delivery table..... E. F. Peckham et al
Sash holder..... J. W. Wynn
Saw filling machine..... C. H. Slack
Saw sharpener..... J. H. Ennis
Scaffold..... J. F. Conover et al
Screw bolts, &c. Ratchet spanner for..... F. W. Schroeder
Scrubbing machine..... J. B. Slattery
Seal. Bottle..... E. J. Brooks
Sealing machine. Bottle..... A. A. Woods
Seed cleaning machine hopper..... J. Harris
Seed tester..... S. Van Bruggen
Separator..... C. T. Rowland et al
Serrating machine..... R. F. Massa
Sewing machine feeding mechanism..... H. C. Miller
Sewing machine. Filled sack..... R. H. Moore
Shade holder. Window..... J. M. Glickman
Shade holding device..... C. L. Hopkins
Shaft. Crank..... F. J. Cole et al
Sharpener. Knife or scissors..... D. B. Donaldson
Sharpening shears or other edged tools. Combined holder and guide for..... P. Hawkinson
Sheet metal can or the like..... F. C. B. Page
Shoe form. Pneumatic adjustable..... C. D. Gaunt
Shoes, gloves, or the like. Fastening for..... E. P. Harlow
Shooting gallery..... W. J. Bowerman
Shutter fastener..... W. A. Jordan
Sign. Changeable..... F. M. Stambach
Signal system. Safety..... F. V. Klug
Signaling system. Block..... H. M. Coulter
Signaling system. Block..... J. O. Bohannon
Silvering table..... G. Glaudel
Slag furnace..... O. S. Garretson
Slag heated boiler..... R. Baggaley
Slag settling apparatus..... H. V. Pearce

Sleigh bunker. Non binding..... D. Halstead
Slot switch..... J. H. Pfeiffer
Smelting furnace. Ziuc..... E. C. Hegeler
Snap hook..... J. A. Peek
Soldering protective apparatus. Self..... F. B. Cook
Sower. Fertilizer..... J. B. & C. B. Ebling
Sponge. Fountain..... B. Fanning
Squares. Rafter attachment for steel..... M. Nicholls
Stacker. Hay..... W. E. Waller
Stacker. Straw..... W. E. Witt
Stackers. Hay retaining device for..... J. O. McCreery
Stairway..... F. A. Winslow
Stamp. Hand..... B. B. Hill
Steam generator..... W. D. Hoxie
Steam or hot water boiler..... J. B. Bernhard
Steps. Device for fixing wooden banisters to stone..... C. von Lom
Stirrup. Safety..... W. W. Markley
Stone polishing wheel..... R. C. George
Stones, &c. and transporting same. Machine for lifting..... T. Trudeau
Store front..... F. W. von Oven
Stove. Heating..... J. A. Jensen
Stove safety device. Gas..... R. H. Watkins
Stove. Self regulating..... R. E. O. Suchier
Stovepipes or other articles. Device for cleaning..... H. C. Krentler
Stump or rock extractor..... W. H. Wright
Sun dial..... A. C. Crehore
Swing..... T. H. Barger
Swivel hook..... E. J. Haverly
Tanning substances. Extracting..... G. F. Bogel
Telephone cut out..... M. L. Smith
Telephone support..... E. P. Baird
Telephone system. Intercommunicating..... A. S. De Veau et al
Tent structure..... J. E. Walsh
Threshing grate..... F. & E. Riedelberger
Ticket for fabrics, clothing, &c. Pix..... J. C. St. John
Time recorder..... R. Dey
Tire and rim. Vehicle..... F. A. Seiberling
Tire. Vehicle..... F. A. Seiberling
Tire. Vehicle wheel..... F. Sadler
Tobacco pipe, cigar holder, or the like..... R. T. Sharman
Tool. Fluid pressure impact..... C. K. Pickles
Top prop..... C. A. Robertson et al
Toy..... F. Maier
Track fastening..... F. Smith
Train staff systems. Staff hoop pouch for high speed..... W. A. D. Short
Tramway poles. Means for operating..... J. Levy
Trap door..... C. W. Baldwin
Triangle. Draftsman's..... A. C. Loomis
Trolley ear..... M. M. Wood
Trolley pole attachment..... P. H. White
Trousers retainer..... S. Reiter
Truck..... P. Pray
Truck and hoist. Combined hand..... W. G. Magoffin
Trunk or baggage lifter and carrier..... G. W. Payne
Truss..... I. J. Horn
Tug. Hame..... N. Guthrie
Tuning hammer..... S. B. Bediant et al
Tunneling..... J. C. Meem
Turbine reheater. Elastic fluid..... O. Junggren
Turbine. Steam or gas..... J. Stumpf
Turbines. Emergency governor for elastic fluid..... D. C. Garroway et al
Turbines. Operating multistage..... A. R. Dodge
Turubuckles. Forming..... W. J. Laughlin et al
Twisting and spinning machine..... A. Klein
Typewriting machine..... W. H. Campbell
Typewriting machine..... 2 pats. B. C. Stickney
Typewriting machine..... A. T. Brown
Typewriting machine ribbon actuating and shift mechanism..... G. W. Campbell
Umbrella drainer..... M. E. Hall
Umbrella. Folding and telescoping..... E. E. Shaffer et al
Vacuum pan..... J. Abraham
Valve..... W. O. Gunkel
Valve. Air brake..... D. S. & J. W. Gilbert
Valve. Air brake triple..... O. A. Alexander
Valve attachment. Engineer's brake..... W. V. Turner et al
Valve. Blow off..... J. B. Barnes
Valve controlling mechanism. Gas engine..... G. H. Ellis
Valve. Cylinder drainage and relief..... B. I. Jones
Valve. Heating system relief..... A. McGonagle
Valve mechanism. Slide..... L. M. Pettit
Valve. Rotary..... J. C. Cruikshank
Valve seat..... E. H. Luken
Vapor apparatus automatic starter..... M. von Recklinghausen
Variable pressure engine..... C. L. Pagenhart
Vehicle..... T. Wilson
Vehicle brake..... C. H. Longenecker
Vehicle steering gear. Motor..... J. E. Kimble
Vehicle wheel..... F. Mari
Vending machine..... E. Shaw
Ventilating heater..... C. B. Holding
Vessel..... A. Nelson
Vessel rig. Sailing..... R. W. Collins
Voting machine interlocking mechanism..... P. Yoe
Vulcanization..... A. L. Cramstock
Wagon dumping..... H. W. Sasse et al
Washboard liquid supply apparatus..... J. A. De Vito
Washing machine gearing..... W. H. Voss
Water bag stopper holder..... A. C. Coe
Water distributing system..... K. K. Kissell
Water gun..... C. H. Radcliffe
Water heater..... H. J. Blanke
Water heater..... M. Flatland
Water power..... M. Kuickerbocker
Weeders. Fastener for teeth for..... J. S. Kendig et al
Weighing machine..... L. Dreyfus
Well pipe attachment. Perforated..... F. M. Kleckner
Well tube wrench jack. Oil..... E. C. Miller
Wheel..... H. H. Porter
Wheel rim..... J. M. T.
Wheels and rails. Device for incision between..... J. M. T.
Wheels. Automatically lubricated..... W. K.
Wheelbarrow..... A.
Wind wheel..... J. A.
Windlass. Portable..... J. A.

Window strip..... W. M. Harris et al
Wire articles. Machine for making..... W. E. Ellis et al
Wire card racks. Machine for making..... G. R. Flowers
X-rays tube shield and support..... L. E. Custer et al

DESIGNS.

Clock case..... 2 pats. T. B. Stephenson, Jr
Mirrors, brushes, or similar articles. Back for hand..... M. K. Thomas
Pendant..... G. Fox

Issued July 25, 1905.

MECHANICAL PATENTS.

Abdominal supporter and truss..... 2 pats. B. F. Lacy
Absorbent and deodorizer..... S. T. Tatti
Accordion..... J. Galleazzi
Acids. Making alkyl barbituric..... A. Einhorn
Adding machine carrying mechanism..... C. Wales
Adding machine paper spacing mechanism..... C. Wales
Agricultural implement..... L. Swarts
Air brake apparatus..... F. S. Cravens
Air brake controller..... E. B. Leigh
Air brake recharging device..... N. V. H. Bergenheim
Air for respiration purposes. Apparatus for regenerating exhaled..... M. Bamberger et al
Air for respiration purposes. Regenerating exhaled..... M. Bamberger et al
Amusement device..... J. & N. Christensen
Anchor..... H. F. Ward
Anchor. Ground..... T. A. Robinson
Animal holding appliance..... A. B. Garrison
Animal trap..... S. E. Huffman
Annunciating mechanism..... C. E. Trump
Annunciator..... S. B. Bankson
Anthracene series and making same. Compound of the..... O. Bally
Armature apparatus. Polarized..... M. Fischer
Atmospheric pressure and temperature motor..... W. M. Fulton
Atomizer..... W. J. Barber
Automobile attachment..... H. C. Ucker
Automobile hub and brake..... C. Raw
Axle repairer. Broken..... S. L. Fader
Bags, instrument cases, &c. Fastening for..... J. Hammesfahr
Baking pan..... B. McCaughey
Ball press..... T. C. Smith
Band cutter and feeder..... J. L. Barker
Barber's chair head rest..... R. Stitts
Bathing apparatus..... S. C. Neal
Bearing for cars or the like. Center R. L. Ellery
Bearing. Self aligning..... I. Deutsch
Bed. Folding..... D. R. Roche
Beds. Sham holder for..... I. J. Stovall
Bedstead. Folding..... F. R. James
Belaying pin..... T. S. Laughlin
Belt..... F. Christ
Belt guide..... H. C. Clay
Belt. Sanitary..... A. M. Young
Belt shifter..... C. M. Hoerregott et al
Belts, straps, collars, &c. Fastener for attaching loops and buckles to..... A. Reznicek
Bicycle support..... E. H. Foster
Bicycle support..... A. Taylor
Bill hook..... W. H. Cooley
Bill hook..... S. J. Flanagan
Binder. Loose leaf..... J. C. Dawson
Binder. Loose leaf..... H. J. Moore
Boat attachment..... J. Irvin
Bodies. Producing..... J. E. Seeley
Book. Multicheck sales..... G. W. Donning
Book stitching machine..... F. Kugler
Bookbinding..... A. T. Hestmark
Boring implement..... J. H. Foust
Bottle cap opener..... H. S. Brewington et al
Bottle holder for medicine cases..... A. W. Hoff
Bottle. Non refillable..... J. A. Watt et al
Bottle stopper..... J. Hollingworth
Bottles, jars, or other receptacles. Closure for..... J. V. Hull
Bottles. Means for holding corks in..... J. Samuels
Bow. Peudent..... L. E. F. Wachter
Box covering machine..... E. B. Cawthray
Box plate..... H. McCann
Brake mechanism. Truck..... B. R. Stare
Brake rigging and operating device therefor..... G. L. Fowler
Brake shaft holding and releasing device..... J. F. O'Connor
Brick handling cart or truck..... J. J. Gledhill
Brick or tile cutting machine..... W. R. Cunningham
Brick or tile. Manufacturing..... C. B. Cox
Brick press mold. Separable..... M. J. Wellington
Brush clamp..... H. U. Ackerman
Brush receptacle. Antiseptic chair E. Hoerichs
Buckle system. Tramway..... S. A. Cooney
Buckle..... J. Jacobson
Building blocks. Machine for manufacturing hollow..... J. W. Shone
Burial case lid..... J. F. Loesch
Burier..... E. J. Lyons
Butter receptacle..... A. F. Thayer
Button..... B. Kade
Button fastener..... F. E. Stanley
Cable grip..... S. A. Cooney
Car bolster..... C. H. Howard
Car coupling centering device..... W. H. Miner
Car door. Grain..... X. Hubert
Car door. Grain..... H. Fisher
Car draft rigging. Railway..... W. H. Miner
Car. Railway..... J. H. Bruce
Car replacer..... 2 pats. C. F. Heitzmann
Car seat..... 2 pats. F. K. Fassett
Car stake..... E. Posson
Cars. Means for connecting draft timbers and center sills of..... W. H. Emerick et al
Carburetor..... L. A. Essner
Carburetor..... H. B. Maxwell
Casting mold. Roll..... F. M. Newingham
Cattle guard..... W. E. Dement
Cellulose. Manufacture of artificial threads from solutions of..... R. Linkmeyer
Cement block forming machine..... B. Miller et al
Cement from slag. Manufacturing Portland..... C. von Foreil
Centrifugal machine shaft mechanism..... H. McCornack

Chair and couch. Combined..... S. A. Walker et al
Chimney..... 2 pats. J. B. Broome
Churn. Working body..... F. S. McDougall
Circuit closer..... E. R. Carlichoff
Cloth folding and measuring device..... C. Norman
Cloth or paper rewinding machine..... W. S. Hatfield et al
Clothes rack, wardrobe, and bath cabinet. Combination..... J. Jones
Coal loading apparatus..... J. L. Howard
Coal, &c. Means for transporting..... J. W. McKeever
Cock. Water tank ball..... J. E. Burdell
Coin collector..... F. R. McBerty
Column..... I. W. Numan
Concrete block..... C. O. Brandell
Concrete mold..... G. F. Lamp
Controller. Automatic..... E. Schattner
Conveyer..... A. L. Laubenstein
Cooker. Steam..... L. W. Gibson
Copying letters. Means for press..... L. Banks
Corn husker..... E. A. Johnston
Corn silking machine..... L. S. Fleckenstein
Cotton chopper and cultivator..... R. C. Laster
Cotton picker..... T. B. Hyde
Cream separator. Centrifugal..... E. R. Bailey
Crushing roll..... W. Brinton
Culinary vessel..... O. M. Knox
Cultivator and cotton chopper. Combined..... C. J. Hayne
Cultivator. Cotton..... G. Le Barge
Current controller..... S. G. M. Anderson
Current motor. Alternating..... M. Milch
Cut out..... C. W. Snyder
Cyclorama..... J. H. Fitch et al
Cylinder lock..... G. Fudiker
Dam..... J. L. Holmes
Dental obturator..... C. A. Damon
Dentist's tooth clamp..... R. E. Barton
Derailleur..... 2 pats. S. W. Hayes
Derailing switch..... L. R. Clansen
Desk and seat. Adjustable wheel..... A. A. Lvtie
Detonating device..... G. M. Pottor
Dispensing apparatus..... C. Ammen
Door barring device. Safety..... G. Knosch
Dough or the like. Machine for working and shaping..... W. S. & C. I. Corby
Drilling apparatus..... W. D. Rankins
Drive mechanism..... J. D. Maxwell
Duck call..... C. H. Ditto
Dump and elevator. Combined..... R. W. Tomlin
Dumping box..... D. B. Cherry
Dust collector..... W. E. Allington
Edge trimming tool. Rotary..... C. G. Belmer
Electric arc influencing device..... T. L. Carbone
Electric arc light..... H. Beck
Electric circuit protective device..... J. I. O'Connell
Electric control apparatus..... W. A. Turbayne
Electric controller..... W. R. Whitehorse
Electric machine. Dynamo..... H. Chitty
Electric terminal bond..... H. J. Wessinger
Electrical resistance..... E. Vedovelin
Electrician's tool..... A. E. Hoff
Electrothermal treatment apparatus..... D. M. Watson
Elevated carrier..... W. W. Parry et al
Elevator gate..... M. J. Scheel
Elevator safety device..... E. R. Carlichoff
Embroidering machine. Multiple..... F. J. Perry
Endoscope or other optical instrument..... R. H. Whapole
Engine controlling device..... N. T. Shorts
Engine fly wheel. Explosive..... W. B. Hayden
Engine spark plug. Explosive..... F. A. Thurston
Engine sparking igniter..... C. Jacobson
Engine speed regulator. Explosive..... A. Markman
Engines. Fluid pressure feeding device for rock drilling..... C. H. Shaw
Engines. Means for preventing pounding in internal combustion..... E. Thomson
Excavating bucket..... F. H. Postlethwaite
Fabric and making same..... 3 pats. G. A. Lowry
Fabric making machine..... G. A. Lowry
Feed regulator..... W. H. & A. W. Bice
Feed water heater..... B. E. Eastburn et al
Feeder. Roller..... L. A. Wheeler
Feeder. Stock..... J. J. Dowell
Feeder..... C. G. Kraft
Fence post..... C. J. B. Moore
Fence post. Composite or concrete..... J. G. Fairbanks
Fence wire stretcher..... O. M. Knox
Fibrous material. Embossed..... F. W. Moore
Filter..... W. Jones
Finger ring..... F. M. Allen
Fire alarm box..... P. J. Corbett
Fire and water proof composition of matter to be used for building purposes..... R. Layburn et al
Fire door. Automatic safety..... E. Peelle
Fire extinguisher..... J. Rogers
Firearm sight..... J. Windridge
Firearm sight..... C. S. Daniel
Firemen. Combination tool for..... J. G. Teasure et al
Fireplace fender..... T. W. Plummer
Fireproof floor..... F. A. Schulz
Fireproof structure..... F. W. Cooley
Fish line reel..... H. H. Richardson
Flood gate..... G. Rnh'mann
Floor box..... D. F. Waters et al
Fluid pressure controller..... I. Hogeland et al
Folding machine..... L. B. Dick
Folding machine..... W. Lang et al
Food product and making same..... A. Bitza
Fork guard..... I. Hirsch
Formaldehyde product and making same..... H. S. Blackmore
Freezing plates. Means for supplying water under constant pressure to..... E. Rarrath
Friction brake..... A. E. Reynolds
Fruits, &c. Press follower for dried..... J. G. Fassett
Fuel briquet and making the same..... M. F. Maguins
Furnace grate. Reciprocating terraced..... C. E. Gogins
Furnace vaporizer..... D. L. O'Connor
Furniture framework. Construction of..... J. A. Stables
Furniture joint..... A. F. Gloger
Fusce construction..... W. E. Matthew
Galvanic battery..... D. L. Winters
Garment hook..... C. H. Gaskins et al

- Garment supporter..... R. Caldwell
 Garment supporter..... E. T. Forrester
 Garment supporting device..... D. H. Cresser
 Gas furnace..... P. J. Nevins
 Gas generator. Acetylene..... C. E. Blackburn et al
 Gas. Producing..... C. Ellis
 Gate..... W. G. Stone
 Gas construction..... K. H. Meador
 Gear. Motion transmitting and reversing..... A. Markman
 Gear. Ratchet worm..... T. E. Button
 Gear. Speed changing and reversing..... H. H. Buffum
 Gearing..... E. Evans et al
 Gearing for centrifugal machines..... S. C. Anker-Holth
 Glass bottle, &c., manufacturing machine..... F. F. Pierpont
 Glass plates in store fronts and show cases. Fastener for..... J. H. Curry
 Glove model..... F. E. Kirbach
 Governor. Electric and pneumatic..... W. H. Nightingale
 Governor. Engine..... R. C. Kimball
 Grading and ditching machine. Road..... H. Ogard
 Grain drill. Disk..... C. L. Fowle
 Grain elevator. Pneumatic..... S. Olson
 Graphite lubricating apparatus..... W. B. Wright
 Grease and water separator..... D. M. Nesbit
 Grinder. Cutter..... S. B. Roy
 Grinder. Traverse..... D. B. Rietz
 Gun barrel straightening machine..... H. J. Nichols
 Gun firing mechanism. Breech loading..... S. A. S. Hammar
 Gun rack. Portable..... R. Y. Wallace
 Hammer. Steam..... C. L. Taylor
 Harrow and cultivator. Combined..... A. B. Hyde
 Harvester and binder..... C. O. Wyman
 Harvester bundle carrier. Grain..... W. H. Crane
 Harvester. Sidehill..... F. H. Williams
 Hat fastener..... W. Bacon
 Hay carrier..... J. H. Burkholder
 Hay rake..... E. W. Burgess
 Head gear..... J. Rosenfield
 Heater and ice and snow melting apparatus. Combined..... W. H. Janney
 Heating apparatus..... W. S. Washburn
 Heel for shoes. Spring..... E. Gareau
 Hinge..... M. E. Pamelee
 Hinge. Gate..... H. Meinecke
 Hoisting machinery. Speed controlling device for..... J. McGeorge
 Ho coupling..... C. Gottwald
 Hub. Wheel..... J. M. Wesley et al
 Hydrosulfites. Making stable dry..... M. Bazlen
 Ice creeper..... J. Weiss
 Indicator..... W. F. Auerbach
 Indicator..... W. I. Sutton
 Insulator..... J. S. Lapp
 Insulator. Strain..... J. S. Lapp et al
 Invalid elevator and truck..... R. Leffmann
 Jar attachment..... J. H. Johnson
 Jar closure..... J. P. Lyon
 Jars or analogous vessels. Cover for..... N. Lampman
 Journal bearing. Lubricating..... M. T. Sheets
 Journal box lubricating device..... D. L. Gensbigler
 Key opening double seam can..... E. Norton
 Key seating tool..... W. L. Schellenbach
 Labeling machine. Box..... J. F. Kachline
 Lacing tip..... D. G. Sunderland
 Lamp. Incandescent electric..... T. G. Dineen
 Lantern holder..... A. H. Porter
 Lathe for building purposes..... J. J. Gorman
 Lathe for hollow woodenware and the like..... H. S. Cane
 Ledger. Self indexing..... H. H. Herrick
 Lenses. Making bifocal..... A. J. Bowers
 Lifting device..... E. G. Wells
 Lime. Producing saccharate of..... P. B. Harje
 Linoleum manufacturing machine..... R. Holtkott et al
 Liquid containing vessels. Pneumatic discharging device for..... I. W. Heysinger
 Load binder..... H. A. Patterson
 Locomotive automatic blowing apparatus..... S. F. Pierce
 Log skidding apparatus..... J. D. Austin
 Loom fluid pressure shuttle actuating mechanism..... S. F. Patterson
 Loom for weaving looped and cut pile fabrics..... J. Lowrie
 Loom harness..... G. W. Renkel
 Loom jack adjuster..... J. Dawson
 Loom stop motion..... F. O'Donnell
 Loom temporary cloth roll support..... E. H. Smith
 Loom weft stop motion..... A. Dont
 Lubricator..... E. L. Siebert, Sr
 Lumber handling device..... G. Jewitt
 Lustering apparatus..... T. Scaramuzza
 Mail bag closure..... W. A. Stinson
 Manhole cover..... R. Cameron
 Match igniting composition..... O. Dieffenbach et al
 Match making machine..... L. Mendelssohn
 Measuring and protecting means for fabrics..... D. B. Strickland
 Meat support. Butcher's..... J. D. Heidenreich et al
 Mechanical movement..... C. E. Brooks
 Memorandum leaves, &c. System of classification and reference for..... I. B. Hendrickson
 Metallophone..... F. R. Goodman
 Milk can..... H. Mikorey
 Milk can..... T. A. Martin
 Miter box..... S. W. Shue
 Mosquito bar or canopy support..... C. G. Rust
 Motors. Automatic regulator for alternating current..... G. H. Hill
 Movement. Intermittent..... H. J. Springer
 Mower knife..... F. Schum
 Music leaf turner..... J. McNeil
 Musical instrument. Self playing..... H. W. Shonard
 Newspaper catching device..... F. M. Morse
 Nitrogen and oxygen. Apparatus for producing pure..... C. Linde
 Nut lock..... K. A. Lund
 Nut lock..... J. W. Graeme
 Oil atomizer..... W. L. Parker
 Oil burner..... F. E. Nelson
 Oil burner..... E. E. Garrison
 Oil flask..... G. Graham
 Oil or other lubricant can..... E. M. Lettis
 Ore reducing apparatus..... W. T. Armstrong
 Ore treating and filtering apparatus..... T. D. Jones
 Packaging fruit and the like. Device for..... L. Otzen
 Paint spraying device. Hand..... H. Mikorey
 Painting apparatus..... C. M. Haeske et al
 Paper. Making perforated..... F. J. Motz
 Parer. Potato..... I. Lincoln
 Pea shelling machine..... J. H. Empson
 Pen filler. Fountain..... E. M. Vaughan
 Pen. Fountain..... T. P. Ambrose
 Penholder. Interchangeable..... C. A. Klein
 Pencil. Lead..... L. W. Faber
 Pie making machine..... O. Colborne et al
 Pile fabric. Looped and cut..... J. Lowrie
 Piles. Expanding point for bearing..... H. R. Stanford
 2 pats..... H. R. Stanford
 Pipe connection. Waste..... H. H. Turner
 Pipe fitting..... W. Vanderman
 Pipe joint..... C. Van Stone
 Pipe or casing sections. Concentrating coupling device for..... J. W. Hays
 Pipe wrench..... F. G. Cornell
 Pivoted clasp..... E. W. Daniel et al
 Planter..... M. Pearson
 Planter. Potato..... H. J. & O. J. Springer
 Plastic block making machine..... C. H. Nesselroad
 Platform. Portable..... J. W. Rice
 Plow..... J. J. Knight
 Plow. Disk..... W. G. Danielson
 Plow shield..... J. C. Culbertson
 Pneumatic..... W. E. Haskell
 Post..... R. S. Paris
 Potato loader..... C. H. Walker
 Power transmission device..... G. A. Cutter
 Printing machines. Delivery mechanism for rotary web..... W. S. Dow et al
 Printing press..... J. L. Firm
 Printing press..... T. W. Barber
 Pulverizer..... H. Aries et al
 Pump..... E. Butts
 Pump bushing. Oil well..... W. Wallace
 Pump. Centrifugal..... L. P. Erickson
 Pump foot valve. Suction..... W. R. Emerson
 Pump. Rotary..... J. W. R. Laxton
 Pumps. Steam valve mechanism for deep well..... W. N. Weinman et al
 Pumping apparatus..... C. C. Weber
 Puzzle..... C. W. Courtney
 Rail clamp. Guard..... J. F. Smith
 Rail joint..... A. T. Palmer
 Rail joint..... C. M. Bennett
 Rail joint..... J. G. Barrett
 Rail joint..... W. P. Klinger
 Rail joint..... C. R. Robins
 Rail joint..... J. H. Allen
 Rail tie..... G. W. Schellenbach
 Railway block signal system..... L. S. Walte
 Railway rail..... C. F. Wollenberg
 Railway signal..... W. B. Smith
 Railway signal. Electric..... C. F. Hoover
 Railway spike..... B. P. Herridon
 Railway switch..... C. B. Brinker
 Railway tie..... F. A. Delano et al
 Railway tie..... H. E. Percival
 Railway, tramway and other vehicles, &c. Wheel for..... S. G. Board
 Rake and fork. Combination..... F. E. J. Arason
 Razor blade safety guard attachment..... J. & J. C. Pietscher
 Receiving apparatus..... H. Shoemaker
 Reclining chair..... F. Nabal
 Record sheet perforating apparatus..... P. Albanese
 Reflector..... R. Fyfe
 Resistance unit..... C. Wirt
 Return flue boiler..... W. Moran
 Rifle sight..... J. T. Peddie
 Rivets or fasteners. Forming metallic..... R. B. Lewis
 Road bed equipment..... J. D. Kneeder
 Rolling rail joints or fish plates. Machine for..... R. B. Charlton
 Roofing nail..... H. B. Sherman
 Roofing slates, &c. Means for securing..... T. C. Somerville
 Rubber heel pad and means for attaching same to boots or shoes..... W. C. Hawtin
 Salt grainer raker..... G. B. Wilcox
 Sand delivering appliance..... G. A. Baker
 Sash balance..... E. Fegert
 Sawdust conveyer..... W. Whitfield
 Scale. Postal..... T. Gray
 Scale. Spring..... L. P. Welley
 Scraper. Wheeled..... C. H. Sawyer
 Screening and drying materials. Apparatus for..... J. J. Gledhill
 Seal for envelopes. Safety..... M. J. Halloran
 Seat..... H. S. Hale
 Selecting device. Electromechanical..... R. P. Elliott et al
 Semaphore..... J. E. J. Kovarik
 Sewing machine stitch regulating attachment..... R. N. Pearsall
 Shade roller and drapery pole hanger. Combined window..... W. Jones
 Sharpening machine..... J. B. Woodworth
 Sheet metal vessel..... W. Geuder
 Shoe..... J. K. P. Bradwell
 Shoemaker's tack puller..... A. B. Edwards
 Shutter worker..... H. Osborne
 Shuttle. Automatic or self threading..... H. Chadwick et al
 Switch and signal track trip..... C. M. Hurst
 Signal system..... W. S. Franklin et al
 Signaling apparatus. Selective..... F. R. McBerty
 Signaling system..... H. W. Souder
 Snap switch..... H. Geisenhoner
 Sound reproducer..... T. H. Macdonald
 Sower. Broadcast seed..... D. E. Speicher
 Spark plug..... F. A. Thurston
 Spark timing device..... P. M. Elsassner
 Speed indicator..... M. J. McDonnell
 Speed mechanism. Variable..... R. T. Hazelton
 Spinning machine stop motion..... J. E. Goodhardt
 Spinning or twisting machine..... V. Belanger
 Spinning or twisting machine thread board..... L. T. Houghton
 Spring work. Knockdown..... J. A. Staples
 Stacking derrick. Hay..... A. T. Boney
 Stair rod and eye..... B. Draper
 Stall. Cattle..... W. A. Pinckney
 Stanchion..... O. H. Robertson
 Steam trap..... F. A. Waldron
 Steel and concrete construction..... C. A. P. Turner
 Stock holding appliance. Portable..... J. S. Garethun
 Steels. Producing tungsten..... E. D. Kendall
 Stocking..... M. W. Mayer
 Stopper..... N. Nelson
 Stripping jack..... C. M. Haeske et al
 Stubble shaver..... P. Caffarel
 Stuffing box..... F. Kales
 Suspenders..... H. R. Stevenson et al
 Swing. Portable..... C. U. Krieg, Sr
 Switch..... W. S. Jackson
 Switch..... H. J. & H. J. Barton, Jr
 Switch and signal throw. Automatic..... H. J. Winthelich et al
 Tacks. Machine for pulling lasting..... H. Lyon
 Tag holder and box lid support. Combined..... S. H. Shepley
 Tag. Shipping..... C. Harper
 Tea and coffee pot. Combined..... C. B. Nebinger
 Telegraph and like cable..... O. J. Lodge
 Telegraphy. Printing..... G. A. Cardwell
 Telegraphy. Wireless..... M. R. Garcia
 Telephone call register..... A. Meyer
 Telephone exchange apparatus..... F. R. McBerty
 Telephone exchange connection register..... H. E. A. Andre
 Telephone line service meter..... C. E. Scribner
 Tennis net..... J. C. Tanty
 Tie fastener..... R. E. G. Burroughs
 Tire..... C. D. Purdy
 Tire fastener for wheels. Rubber..... G. T. Reed
 Tire vehicle..... F. A. Ruff
 Tires of motor vehicles. Apparatus for inflating pneumatic..... A. Michelin
 Tobacco or other substances. Case and device for holding and disintegrating..... W. H. Wingfield et al
 Tongue shield..... H. Gardner
 Toolpick machines. Cutter for..... H. A. Dorr
 Train order delivery device..... H. McDonough
 Train safety device..... W. Kuorn
 Tramways. Double drum for overhead..... A. E. Brown
 Transom and door weather guard..... D. F. Charlton
 Trolley wheel..... W. K. Richardson
 Trousers creaser..... L. B. Truesdell
 Trousers press..... O. S. Morse
 Truck. Baggage and freight..... L. Barnes
 Truck bolster. Car..... 2 pats..... J. M. Ames
 Tug attachment. Hame..... J. F. Mills
 Turbine. Elastic fluid..... O. Junggren
 Turbine. Steam..... C. M. Jones
 Type writing machine..... L. Schlesinger
 Type writing machine..... O. Gorwitz
 Type writing machine carriage stop..... G. W. Singleton
 Umbrella handle. Detachable..... L. E. Morrow
 Vacuum pan and condenser. Combined..... C. T. Rogers
 Valve. Cylinder relief..... L. A. North
 Valve. Heating system relief..... A. McGonagle
 Valve. Locomotive throttle..... E. S. Burtless
 Valve mechanism..... H. G. Colmer
 Valve. Thermostatic..... H. W. Larsson
 Valve. Throttle..... H. M. Lofton
 Vehicle attachment..... E. H. Cuddy
 Vehicle brake shaft..... M. Potter
 Vehicle heater..... I. F. Smith
 Vehicle wheel..... W. T. Jones
 Vehicle wheel..... J. H. Hershberger
 Vehicles. Indicating device for tramway..... J. E. Anger
 Ventilating appliance..... B. Johnson
 Ventilator..... G. F. Williams
 Vessels. Protecting jacket for storage..... W. A. Moffat
 Wagon body..... M. L. Vaughan
 Wagon. Dumping..... T. R. Carskadon
 Washers. Means for forming nut-locking..... A. M. Gaines
 Watch. Stem winding and setting..... R. K. Hohmann et al
 Water level indicator..... R. H. Stollar
 Water level regulator..... T. Ferguson
 Water tight joint for tanks, boats, &c..... R. D. Mayo
 Watering trough..... D. C. Coble
 Welding apparatus. Electric..... J. C. Perry
 Well drilling machine. Deep..... M. McCain
 Wheel..... J. A. Casey
 Wheelbarrow..... H. Edick
 Wigwag..... J. A. Lynn
 Wind instrument mouthpiece..... D. M. Carson
 Window machine..... C. E. Hadley
 Window frame and sash..... N. Poulson
 Wire fabric..... G. Mafera
 Wire stretcher..... J. E. Baechler
 Wire twister..... A. Rees
 Wrench..... F. G. Cornell
 Wrench..... A. Gagnon
 Wrench..... F. W. Stanton
 Wrench..... O. W. Blake
 Yarn from short fiber material. Manufacturing..... R. Krom
- ### DESIGNS.
- Braclet..... F. Mason
 Clock case..... S. M. Lawson
 Hinge..... J. C. Griffin
 Piano case..... 2 pats..... W. Lane
- ### Issued August 1, 1905.
- ### MECHANICAL PATENTS.
- Acid. Thiazole sulfonic..... A. Thaus
 Adding machine inking mechanism..... C. Wales
 Aluminium. Making..... A. G. Betts
 Animal dipping machine..... J. Manifold
 Aqueous separation. Means for effecting..... J. D. Darling
 Asbestos composition..... H. C. Todd et al
 Auger. Adjustable..... A. C. Bohlin
 Baling press..... C. M. Davidson
 Barrel hoop..... J. W. Brainard
 Basket..... E. Behne
 Bat. Base ball..... A. Burrow
 Bat. Base ball..... H. Brown
 Batteries. Automatic switch for storage..... 2 pats..... T. Duncan
 Beam end protector..... P. Rieseck
 Bearing. Antifriction..... T. Fox
 Bearing mold..... W. G. Hanna
 Bed. Metallic..... F. B. Upton
 Belt shifter..... D. Abrey
 Billiard cue..... J. B. Ponk
 Binder frame. Loose leaf..... F. Grimme
 Binding machine for way bills, &c..... C. F. McBee
- Blast loading device..... E. Cornelius et al
 Blasting compound..... F. G. Dokkenwadel
 Bleaching apparatus. Continuous..... M. Muntadas y Rovira
 Block mold..... P. B. Miles
 Block molding machine..... E. W. Smith
 Blower or fan..... J. M. Seymour, Jr
 Boat rapid launching apparatus. Life..... G. C. Schmidt
 Boiler..... E. B. Parkhurst
 Boiler..... C. G. Rowley
 Boiler furnace. Steam..... J. W. Cleary et al
 Boiler heated. Steam..... I. Harter, Jr
 Boilers. Duplex safety water column for steam..... P. A. Rohan
 Boilers. Gas burner and regulating valve for..... J. W. Wilson
 Bolt lock. Chain door..... R. T. Atkin
 Bore black kiln..... 2 pats..... B. Eba
 Bookcase. Sectional..... P. B. Pierce
 Boot and shoe follower or form..... B. J. Noyes
 Boot and shoe holding appliance..... G. A. Watson
 Boring machine..... J. Purcell
 Bottle and stopper therefor..... E. Bethel
 Bottle cap..... 3 pats..... F. Reht
 Bottle case..... F. W. Molitor
 Bottle filler..... C. B. Hall
 Bottle. Fraud detecting..... S. E. Bell
 Bottle. Non-refillable..... G. Klumpp
 Bottles. Combined brush and stopper for..... W. H. Davidson
 Bottles, jars, or other vessels. Means for stopping or closing the mouths of..... J. Jorgensen
 Bottles or the like with liquids and applying stoppers or seals thereto. Means for charging..... R. G. Nash
 Bottling device. Beer or liquid..... A. J. Signor
 Box shuck making machine..... J. P. Wright
 Box shucks or slides. Machine for making and sanding..... C. H. Palmer et al
 Brace..... B. W. Frampton
 Bracelet..... L. E. Sadler
 Braiding machine..... T. K. Ober
 Brick machine..... O. Congdon et al
 Bridge..... A. O. Cunningham
 Bucket. Bottom dumping..... G. L. Stuebner
 Bucket. Clam shell..... J. McMyler
 Buckle..... J. A. Allen
 Buckle. Trace..... W. J. Godfrey
 Buggy top support..... T. B. Modlin et al
 Building block manufacturing machine..... J. W. Shone
 Bung..... L. Mueller
 Bunsen burner..... O. Wiederhold
 Burial casket..... J. P. Hill
 Burner..... J. N. Leach
 Bushing. Twyer..... F. Klepko
 Butter mold..... C. Corbett
 Cabinet. Compartment..... C. V. Smith
 Cabinet. File..... H. S. Hopkins
 Cables. Apparatus for making armored..... M. M. Waterman
 Call apparatus. Selective..... J. A. Hulit
 Camera. Photographic..... F. Blaupain
 Can cover fastener..... D. W. Roberts
 Can making machine..... reissue..... J. Eldridge
 Can opener..... G. C. Parish
 Gauthone from plants belonging to the nettle family. Obtaining..... G. H. Roeder
 Car. Convertible stock or stable..... 2 pats..... I. J. Naughton
 Car. Dumping..... M. Boyle
 Car heater..... E. E. Gold
 Car stake pocket. Railway..... P. J. Norfleet et al
 Car ventilator..... H. Kennell
 Car wheel..... P. J. Garrison
 Car wheel. Self oiling mine..... J. F. Weisbrod et al
 Carbonating and dispensing apparatus. Liquid..... J. F. & D. Youngblood
 Carding machines. Card clothing for fancy rollers of..... E. Thielmann
 Carpenter's tool..... J. Le Roy
 Carriages. Sled runner for baby..... W. L. Post
 Cartridge..... C. A. Bailey
 Cash register..... L. S. Scott
 Cash register..... W. H. Muzzy
 Chafe iron..... W. H. Loper
 Cheese cutter. Computing..... L. Swank
 Chuck la'he..... G. F. Bean
 Churn. Aerating..... J. M. O'Connell
 Chate, &c. Coal..... C. W. Hunt et al
 Cigar holder..... J. L. McKay
 Clock. Alarm..... J. E. Blithe
 Clutch..... G. E. Graham et al
 Clutch, brake or the like. Friction..... H. S. Hele-Shaw
 Clutch controlling mechanism..... A. Armitage et al
 Cock. Try..... J. W. Bailey
 Collar. Metallic horse..... J. B. Howell
 Coloring matter and producing the same. Anthracene..... O. Bally
 Colter. Plow..... K. P. Klingberg
 Column..... J. Lally
 Comb..... F. W. Grell
 Combustible mixtures. Apparatus for producing..... J. Clay
 Conductor suspension device..... G. F. Hagerman
 Conduit. Underground..... H. T. Craven
 Converter for bessemerizing matte..... R. Baggaley
 Converter lining..... C. M. Allen
 Converters. Lining..... C. M. Allen
 Conveyer. Pneumatic..... A. W. Baister
 Coop. Folding..... H. R. Franke
 Copper converter..... R. Baggaley et al
 Copying writings. Moistening cloth for..... G. Stern
 Corset..... E. H. Garnier
 Couch..... F. T. O'Brien
 Couch. Combination..... A. Brandt
 Cream separator. Centrifugal..... S. C. Anker-Holth
 Credit register..... W. M. Ellett et al
 Crushing rolls..... R. Pick
 Cuff fastener..... C. W. Barnes
 Cultivator..... G. W. & C. E. Goss
 Cultivator..... O. H. Cloyd
 Curbing. Structural street..... H. B. Oursler
 Current induction motor. Alternating..... L. Schuler
 Curtain and portiere elevator. Lace..... G. Rosenthal
 Curtain fixture..... 2 pats..... J. A. Lyons
 Decoy..... J. W. Reynolds
 Dental matrix..... T. Green

- Dispensing device..... C. P. Gliem
Ditching machine..... H. W. Sargent
Door..... F. W. Newman
Door check..... T. C. Martin
Door fastening device..... F. G. Willard
Door hanger. Sliding..... P. J. Levander
Door releasing apparatus..... C. A. Crisqui
Drainage and vent fitting Soil pipe..... F. Walker
Dress suit case cover..... S. Botteese
Drill hole enlarging device..... T. M. Topp
Drilling machine..... W. Wattle
Dyeing apparatus..... J. A. Willard
Dyeing machine..... J. A. Willard
Dyeing machine. Duplex..... J. A. Willard
Educational device..... J. B. Olivera
Electric cable..... C. E. Wilson
Electric circuit controller..... F. Cedergren
Electric circuits. System for the selection of..... A. G. Cox
Electric meter..... 21 pats..... T. Duncan
Electric motor. Asynchronous..... P. Jigonzo
Electric switch..... J. H. Rusby
Electrical circuit selecting system..... A. D. Neal
Electrolytic pots containing fused baths. Stopper for..... C. M. Hall
Electrostatic separation..... G. W. Pickard
Electrostatic separation apparatus..... G. W. Pickard
Electrotherapeutic apparatus..... H. E. Currey
Elevator brake..... M. Fullenlove
Elevator engine..... C. W. Hoffman
Elevator safety device..... F. W. A. Wiesebroek
End gate fastener..... W. K. Clarke
Engine coupling traction..... W. H. George
Engines. Drill bit rotating mechanism for rock-drilling..... J. G. Leyner
Engines. Electrical ignition apparatus for internal combustion..... A. J. Postans
Exercise apparatus. Physical..... R. R. Smolik
Exhibiting device..... J. O. Hinchley
Expansion bolt..... N. H. Steward
Explosives. Making..... J. C. Smith
Extension table..... E. H. Humphrey
Eyeglass holder..... G. A. Bader
Eyeglasses..... C. F. Ingold
Faucet. Mixing..... W. L. Ross et al
Feed bag..... J. J. Langmesser
Feed water heater and purifier..... T. Ferguson
Feed water heater and purifier..... H. E. Moffat
Feed water purifier..... H. E. Moffat
Fence. Electrically energized..... A. D. McNair
Fence post..... J. W. Gannaway
Fence post..... J. L. Beringer
Fence post device..... I. M. Warner
Fence posts. Adjustable wire fastener for cement..... J. C. Bowe
Fence stay Wire..... T. M. Connor
Fencing. Machine for making staple..... S. S. Withington
Filter. Water..... G. G. Sutton
Filtering cell..... G. A. Duncan
Finger nail cutter, cleaner, and file..... J. D. Wright
Fire screen..... W. S. Hutchinson
Firearm. Breach loading..... C. P. Fay et al
Firearm safety stop..... M. B. Eby
Fish cutter tank..... J. B. Duryea
Fish holder or bag net..... E. W. Clark
Fishing rod or pole tip..... O. Miller et al
Flier..... F. H. Martin et al
Floor mat. Flexible..... E. Packer
Flour holder..... J. R. Riensstra
Fluid motor. Elastic..... P. B. Belches
Fruit and vegetable can..... C. A. Julian
Fruit drier. Domestic..... H. A. Le Mar
Fruit packing machine..... S. H. Shelley
Fruit shears..... T. A. Ryles
Furnace..... S. J. Riley
Furnace draft apparatus. Boiler..... G. Hughes
Furniture connecting device. Knockdown..... C. B. Howell et al
Furniture. Knockdown..... J. E. Cartland
Fuse igniter..... H. E. Brant
Fuses. Device for securing metallic protecting caps to..... K. Wieser
Game apparatus..... C. A. Darius
Garment clasp..... F. Wright
Gas burner..... S. Kaufman
Gas. Burning acetylene..... 2 pats..... E. J. Dolan et al
Gas from peat. Apparatus for the manufacture of combustible..... C. Whitefield
Gas generator..... E. H. Amet
Gas generator. Hydrocarbon..... W. I. Twombly
Gas generators. Locking device for car id holders and valves of acetylene..... H. L. Pyle
Gas lighter. Electric..... J. Mlada
Gas producer..... W. B. Hughes
Gas producer..... H. Gerdes
Gas producer..... E. Korting
Gate..... S. A. Whitsett
Gearing..... W. A. Hell et al
Gearing for conveyances..... W. M. Power
Glass mount for making shades, screens, &c. Skeleton cast metal..... R. F. Crooke
Glazer's tool..... J. Printz
Grafting machine..... D. B. Speer
Grain binder motor attachment..... H. W. Price et al
Grain separator..... S. Dunkelberger
Grain separator..... L. T. Mann
Grave shield..... A. C. Miller
Grinding machine. Knife..... H. Robinson
Guns. Barrel locking device for breakdown..... A. H. Fox
Guns. Single trigger mechanism for breech-loading double barrel..... C. F. Lefever
Guns. Swinging fore-sight carrier for..... J. Kurig
Halter..... J. Wilhelm
Hame fastener..... W. G. Youngs
Hame latch..... J. M. Williams
Hammock swing..... W. H. Frampton
Harrow cart. Riding..... F. M. Leusch
Harrow riding attachment..... S. B. Hazard
Harvester. Hand cotton..... T. H. Price et al
Harvester. Pneumatic cotton..... W. F. Harbour
Harvesting machine. Self propelling combination..... J. J. Troeger
Hat holder..... J. E. Baker
Hat ventilator..... 2 pats..... J. C. Wilson
Hay rack..... E. A. Wheatley
Heating apparatus. Steam..... J. H. Knudsen
Heating water and circulating the heated water by means of steam. Apparatus for..... A. H. Barker
Heating water and other liquids. Electrically..... E. A. Byrnes
Heel concaving machine. Wood..... F. A. Day
Hinge..... G. W. Marsh
Hinge..... J. R. Corbett
Hinge. Separable spring..... G. H. Schiek
Hollow bodies by means of matrix and die. Manufacture of seamless metallic..... G. Kaub
Hollow metallic body..... E. A. Voelke
Hook and eye..... E. J. Smith
Hook bending machine..... H. Jones
Horseshoe..... W. M. Dight
Hose coupling..... J. Hogan
Hose coupling..... I. W. Exley
Hose supporter. Abdominal..... I. B. Kleinert
Hot water apparatus..... W. Voelpe, et al
Hydrant. Non-freezing..... C. Ellis
Hydrocarbon burner..... J. O. Alwood
Indicating instrument..... T. Duncan
Inhaler..... J. R. Spanogle
Inkstand..... W. Williams
Internal combustion heat engine..... J. L. Bogert
Iron sand, iron oxid, and other suitable substances. Apparatus for the reduction of..... D. R. S. Galbraith
Journal bearing..... J. S. Kemp
Journal box..... J. C. Fritts
Ladder..... H. E. Skeels
Ladder..... A. Hartzler
Lambrequin or like hangings. Pole for..... M. M. Harding
Lamp. Electric hand..... H. F. Stakelbeck
Lamp. Inverted incandescent gas..... F. M. Brooks
Lamp or gas burner. Inverted incandescent..... A. Rector
Lamp or gas burner. Inverted incandescent..... A. Rector
Lamp protector..... W. H. Greenwood
Lath..... F. O. Waite
Lath..... R. L. Ambrose
Leather working machine..... H. W. Le Favor
Lemon squeezer..... E. D. Middlekauff
Lifting jack. Double acting reversible..... W. Buckethal
Lifting jack. Screw..... E. H. Goodwin
Lime grip holder..... A. Nord
Lines, ropes, cables and the like. Hitch block for..... A. H. Jones
Linotype machine..... H. C. Zenke
Linotype machine..... J. R. Rogers
Linotype machine..... C. L. Grohmann
Linotype machine liner..... F. P. Howard
Liquid separator. Centrifugal..... T. Collins et al
Liquids or for compressing gases. Hydraulic apparatus for raising or forcing..... H. D. Pearsall
Locomotive adjustable exhaust..... C. M. Lewis et al
Locomotive. Compound..... J. B. Allfree
Locomotive engine..... W. M. Jewell
Loom attachment..... J. M. Van Werry
Loom filling tension device..... J. Northrop
Loom harness heddle separating device..... C. D. Lanning
Loom threading machine. Carpet..... H. Heyman
Loom warp stop motion..... H. Wyman
Looms. Pattern matching mechanism for tapestry..... H. Wyman
Lubricating device..... O. Crosby
Lubricator..... H. P. Josewski
Mantle trimming apparatus..... W. W. Adam
Manure loader..... E. Ring
Marking pot and stencil brush inker. Combined..... J. B. Laughton
Match box filling machines. Feed regulator for..... A. Lagerman
Match machine..... J. P. Wright
Match splint assembling machine..... W. E. Williams
Matte. Converting..... R. Baggaley
Measuring instrument. Electrical..... T. Duncan
Mechanical movement..... W. W. Heffron
Metal drill..... O. Granberg
Metal machine. Expanded..... L. C. Steele
Metal. Machines for manufacturing expanded..... O. Bradford
Metals. Pulverizing..... H. Maxim
Meter..... 5 pats..... T. Duncan
Milk evaporating apparatus..... W. A. McCool
Molding machine vibrator..... F. W. Hall
Motor..... H. E. B. Blomgren
Motor meter..... C. P. Steinmetz
Motors. Balancing high speed..... P. E. Dowson
Mower grass catching attachment..... C. K. Haun
Musical instrument tuning device..... J. H. Brady
Musical instruments. Tracker and connection for automatic..... A. E. Whitehead et al
Musical or other instrument employing perforated sheets..... O. H. Arno
Nail puller..... M. H. Willhide
Nest. Hen's..... J. H. Blank
Numbering machine..... L. K. Scottford
Nursery chair..... H. P. Rasmussen
Nursery seat. Child's..... M. Wolff
Nut lock..... P. Liberty
Oar. Bow facing..... O. C. Simpson et al
Oil conductor..... J. C. Jones
Oil wheel. Circulating..... G. T. Wright
Oil wheel and bearing. Circulating..... G. T. Wright
Ore concentrator..... I. A. Cammett
Ore dressing machine..... 2 pats..... H. S. Anderson et al
Ore feeder..... M. Nelson
Packing. Metallic..... A. Beldam
Packing. Piston..... T. Reading et al
Packing. Piston..... W. B. Norton
Pail attachment. Milk..... C. D. Higgins
Paper or other substances. Device for stretching..... R. Gauguet
Paving. Means for removing asphalt..... J. Gammie
Peat for the production of fuel and the recovery of the by-products. Treating..... C. A. Sahlstrom
Pencil sharpener and point protector..... A. Livingston
Photophone..... R. W. Hartmann
Physician's operating table..... B. B. Foster
Piano. Automatic..... M. Clark
Piano back. Upright..... F. Denninger
Pianos. Key locking device for pneumatic..... J. Carruthers
Picture frames. Foldable blank for forming..... H. A. Fisher
Pig trough..... P. J. Devine
Pin setting. Stick..... L. E. Sadler
Pipe coupling..... A. T. Herrick
Pipe coupling..... J. S. Laitinen
Pipe coupling lock..... G. Angeloni et al
Pipe coupling. Threadless..... J. P. Jones
Pipe hanger..... R. W. Beaton
Pitman rod connection..... J. B. Lavene
Plane..... J. H. McGhan
Plant support..... W. Hughes
Plants. Machine for thinning rows of..... F. H. Kerr
Plastic article mold..... W. A. Dickey
Plow..... J. T. Tarver
Plow stock..... P. Fehrentz
Plows. Four horse evener for wheel..... O. P. Wolcott
Plug switch..... J. I. Ayer
Pneumatic despatch tube apparatus..... J. F. Skirrow
Pneumatic despatch tube apparatus carrier..... C. F. Stoddard
Potato separator, sprouter and cleaner..... C. V. Rose
Power brake..... L. Pfingst
Power transmission. Resilient connection for..... E. A. Muller
Preserving jar..... R. J. Rose
Printing lithographic and similar transfers. Press for..... T. M. North
Printing press..... J. J. Raftar
Printing press inking arrangement..... G. F. Fenner
Printing roller..... F. Horsell
Pulley frame Fork..... H. L. Ferris
Pump. Centrifugal or similar..... F. Ray
Purifying apparatus..... H. Reiser
Rail joint..... C. J. Samuelson
Railway crossing..... P. J. Sandhofer
Railway rail joint..... W. Smith
Railway signal. Automatic..... J. P. Phillips
Railway spike..... R. O. Day
Railway switch safety device..... C. F. McDonald
Railway tie..... W. A. Moore
Railway tie..... A. M. Freeman
Railway track structure..... F. F. Stockwell, Jr., et al
Railway trains. Mail and package delivering and receiving device for..... F. X. LeFebvre
Razor..... S. W. Marvin
Recording lock. Reissue..... A. De Vibiss, Jr
Relay. Electrical..... A. D. Neal
Retort..... J. E. Aslin
Reversing mechanism..... J. Shoecraft
Road roller, kneader and packer. Oiled..... A. E. Burns
Rock drill..... E. R. Langford
Rock drill attachment..... M. Hardsocg
Rolling mill guide attachment..... A. M. Johnston
Rotary engine..... L. V. D. Sutton
Ruling machines. Pen clamping device for paper..... H. N. Grissinger
Sand distributing machine..... 2 pats..... G. Gioisa
Sash lock..... W. C. Applegate
Scales. Concrete foundation for wagon and track..... G. H. Birchard
Screen plate washer. Automatic..... R. Babbitt et al
Screw driver..... R. Schulze
Screw driver..... J. D. Campbell
Seal..... 2 pats..... E. J. Brooks
Seal. Snap..... E. J. Brooks
Sealing device. Vessel..... T. E. Harley
Seat covering support..... R. W. Bock
Seesaw..... E. D. Smith
Self waiting stand..... A. Hyde et al
Semaphore locking device..... A. B. Apperson
Sewer and drain cleaning apparatus..... W. F. Hanaford
Shade fixture..... R. Morris
Shaft coupling..... I. Lehman
Sheet metal expanding machine..... L. E. Curtis
Shock lifter and carrier..... J. K. Green
Shoe fastening..... R. S. Scott
Shuttle brake..... 2 pats..... J. Laforet
Signaling. Method and means of..... F. W. Prentice
Signaling system and brake applying mechanism. Combined..... H. C. Reichardt
Silver. Electrolytically refining..... A. G. Betts
Skirt supporter..... C. P. Keeler
Sled draft mechanism. Traction..... N. E. Brown
Smoking implement..... F. W. Lucas
Snap hook..... E. R. Beach
Snatch block..... 2 pats..... W. Smith
Soldering apparatus. Can cap..... J. T. Wilmore
Sparker..... A. R. Joy
Speed transmission mechanism. Variable..... H. K. Cowen
Spinning and winding mechanism..... C. W. Hubbard
Spinning machine..... J. J. Buckley et al
Spinning mechanism..... J. J. Buckley et al
Spittoon..... A. Garfein
Spring motor..... C. Adelhelm
Sprinkling device. Powder and other material..... H. C. Sanders
Square..... C. J. Baumgartner
Stacker. Hay..... W. C. Kyle
Stamp. Hand..... W. Laycock
Stamp holder..... C. Grunder
Stamp. Printing..... W. Laycock
Staves or blanks. Machine for making barrel..... E. E. Bartholomew
Steam boiler..... C. A. Sturm
Steam eliminator..... W. Lloyd
Stereotype casting boxes. Means for cooling..... W. Scott
Stocking supporter..... C. W. Stimson
Stone mold. Artificial..... G. Doughty
Stone. Treating..... H. Ryan
Storage and preserving can. Vacuum..... J. M. Stakes
Stove and fireplace. Open..... E. Hennigar
Stove grate. Vapor..... W. H. Wilder
Stove. Oil..... W. H. Wilder
Stoves. Gas, gasoline, and oil heating..... J. W. Neumann
Stovepipe coupling..... H. H. Orr
Straw feeder and band cutter..... E. J. Vraalstad
Strength testing machine. Coin controlled..... W. W. Rosenfield
Stuffing box. Hydraulic cylinder..... T. E. Holmes
Supporter..... A. Zangmeister
Surface dressing machine..... D. Mathews
Swinging reclining chair..... I. Z. Merriam
Switch lever lock..... W. J. Bush
Switch operating mechanism..... H. Dickinson
Switches. Electrically controlled shifting system for track..... T. Bovey
Table..... E. Murray-Aaron
Tacking tool..... A. Hebert
Tacking tool. Hand..... C. Paulsen
Tankometer..... H. A. House
Tanning apparatus..... W. H. Smith
Telegraph receiver. Electric wave..... C. L. Fortier
Telegraphy. Syntonic space..... O. J. Lodge et al
Telephone cut out..... J. A. Turnquist
Telephone exchange..... H. G. Webster
Telephone exchange apparatus..... E. E. Ries
Telephone exchange system..... E. R. Corwin
Theater appliance..... H. A. Shauls
Thermal protector. Automatic restoring..... F. B. Cook
Thill coupling..... W. A. Buchanan
Three wire meter..... T. Duncan
Threshing machine..... W. Nighswonger
Tile machine..... F. S. Hutchinson
Time controlled apparatus..... C. B. Salyer
Tire..... C. H. Bowly
Tire. Emergency..... H. C. Waite
Tire. Vehicle..... W. W. Hilton
Tire. Vehicle wheel..... H. Garner
Tool. Compound..... J. W. Quilling
Tool. Electromagnetically operated reciprocating..... H. S. Sherman
Tool. Fluid pressure operated..... C. H. Johnson
Tool. Fluid pressure operated..... H. H. Vaughan
Tool. Percussive hand..... 2 pats..... H. Potter
Tool. Percussive hand..... H. Potter

Continued in September Number.

Canadian Patents.

Canadian Patents may now be obtained by the inventors for any of the mechanical inventions named in the foregoing list, provided they are simple, at a cost of \$30 each. If complicated the cost will be a little more. For full instructions address Inventive Age Publishing Co., 918 F Street N. W., Washington, D. C.

Foreign patents may also be obtained in certain other countries.

PATENTS

Send Your Business Direct to Washington ∴ ∴
∴ ∴ Saves Time and Insures Better Service.

Caveats,
Trade Marks,
Copyrights
and
Designs.

My office is close to U. S. Patent Office. FREE report as to patentability made. Personal attention given—TWENTY-FOUR YEARS PRACTICE. Book "How to Obtain Patents," etc., sent free. Patents procured through E. G. Siggers receive special notice, without charge, in the—

INVENTIVE AGE

Illustrated Monthly—Seventeenth Year.
Terms, \$1.00 a Year.

E. G. SIGGERS, 918 F STREET, N. W.,
WASHINGTON, D. C.

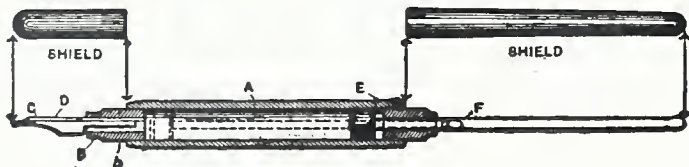
Look At Our Unprecedented Premium Offers !
To Old And New Subscribers Alike.

The "POST"

SELF-FILLING AND CLEANING FOUNTAIN PEN.

No Filler. No Soiled Fingers. No Lost Time. Simple and Perfect.

THIS IS ITS CONSTRUCTION.



Price \$2.00.

Including one year's subscription to

The INVENTIVE AGE AND PATENT INDEX



ELECTRICIAN'S HANDY BOOK

By T. O'CONOR SLOANE,
A.M., E.M., PH.D.

Handsomely Bound in Red Leather,
with Titles and Edges in Gold.
Pocket Book Style.

800 Pages. 500 Illustrations.

Price \$3.50.

Including one year's subscription to

The INVENTIVE AGE & PATENT INDEX.

Appleton's Cyclopedia of Applied Mechanics

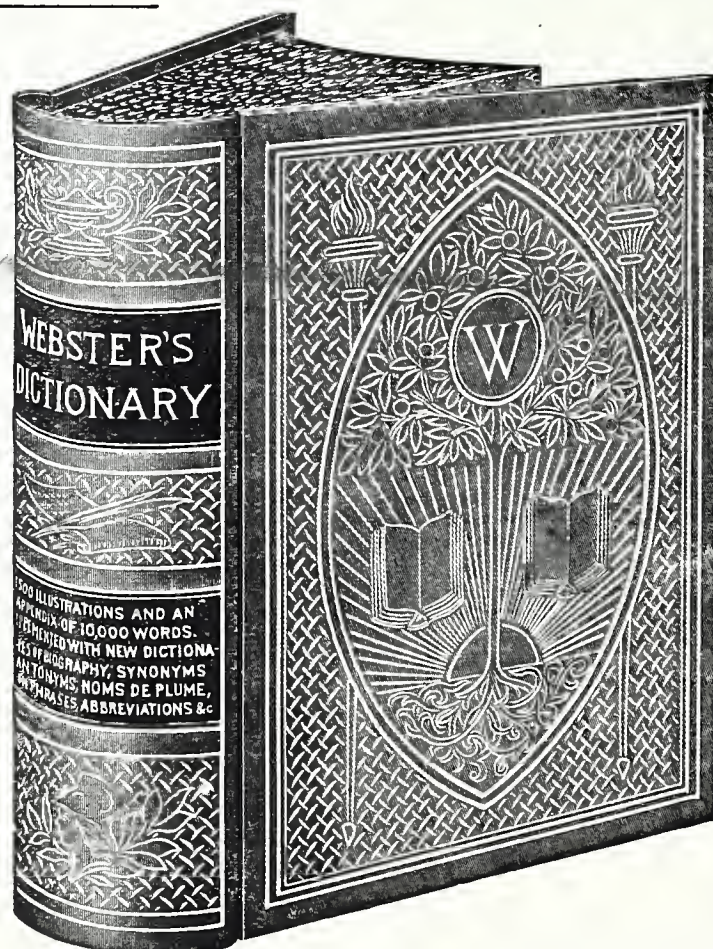
Edited by PARK BENJAMIN, Ph.D., LL.B.
A Magnificent Set in Three Volumes Fully Illustrated.



EACH VOLUME 10 x 7 x 2 INCHES WEIGHT 20 LBS.

SPECIAL PRICE \$12.

Including one year's subscription to The Inventive
Age & Patent Index.



1540 Pages; 1500 Illustrations; Full Library Sheep
Binding; Dennison's Patent Index; Size, 4 x 9 x 10
Inches; Weight eight pounds.

Price \$2.50

With one year's subscription to
The Inventive Age & Patent Index.

....A....

Complete Electrical Library

By PROF. T. O'CONOR SLOANE.

5 Volumes,

1300 Pages,

Over 450

Illustrations.



A \$7.00

Library for

\$6.00,

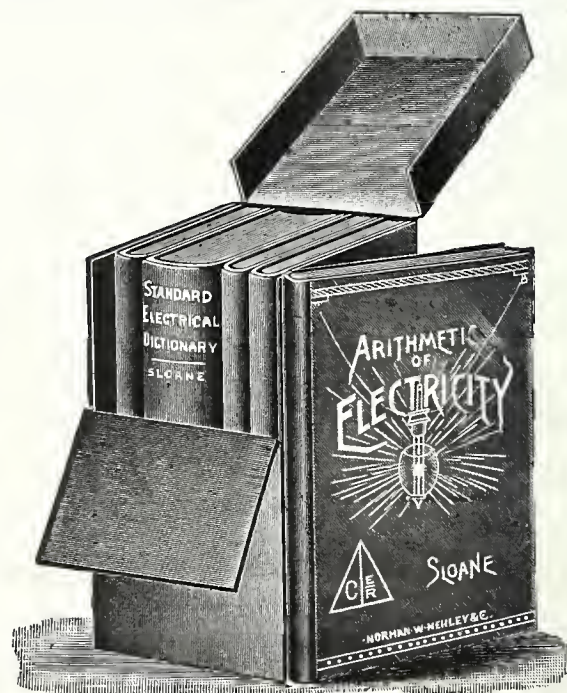
Including

one year's

subscription

to

The Inventive Age & Patent Index.



SEND FOR OUR FREE CATALOGUE OF BOOKS FOR INVENTORS,
AND MECHANICS.

Address: THE INVENTIVE AGE PUBL'G CO., 918 F St., Washington, D. C.

A JOURNAL
OF MANUFACTURING
INDUSTRY

THE Inventive Age

AND SCIENTIFIC PROGRESS.

SEVENTEENTH YEAR, {
No. 9.

WASHINGTON, D. C.--SEPTEMBER, 1905.

SINGLE COPIES 10 CENTS.
ONE DOLLAR A YEAR.

ELECTRIC MACHINERY IN SPINNING MILLS.

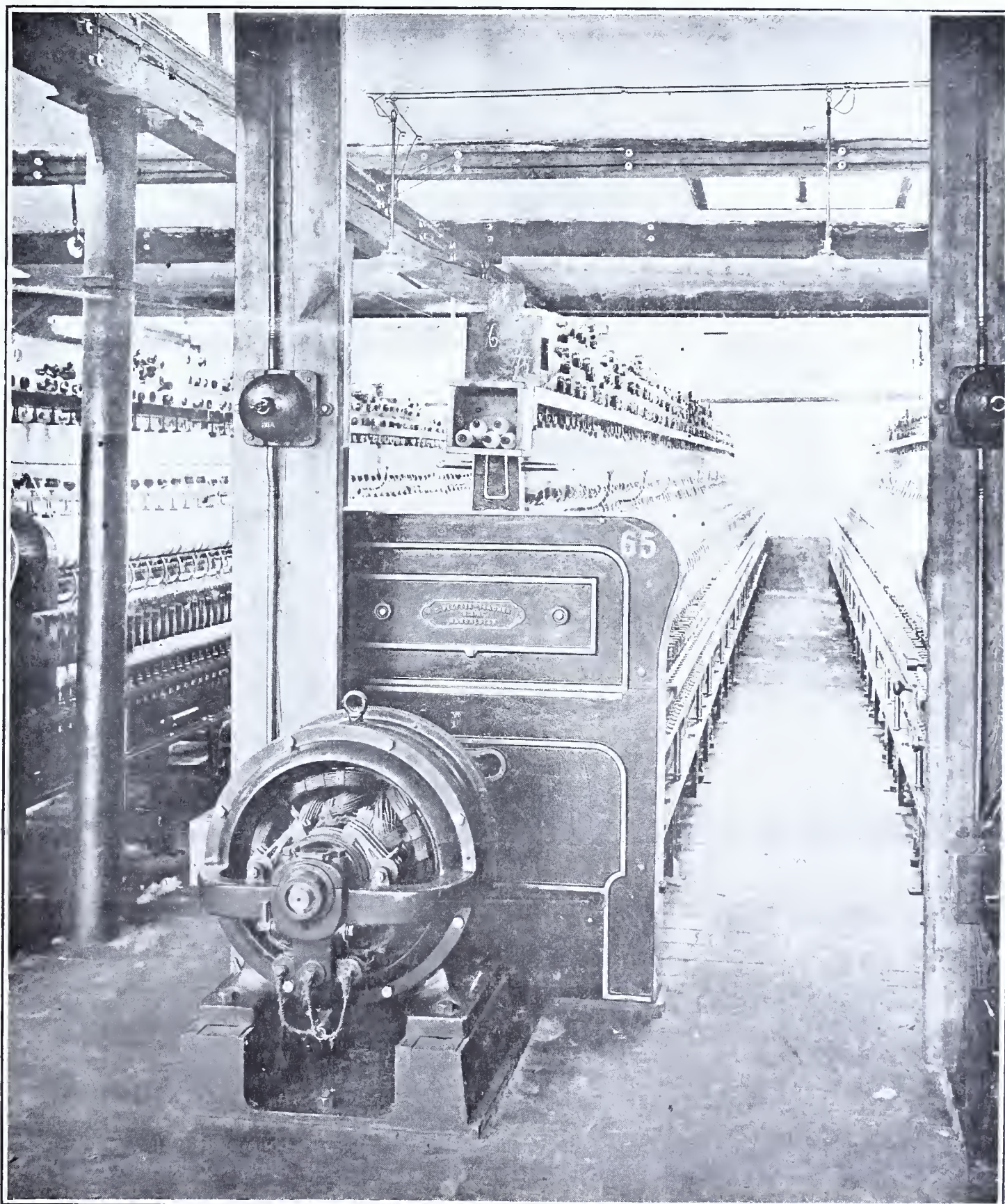
By L. RAMAKERS.

THAT electricity has become an indispensable auxiliary for the erection and equipment of a factory upon modern lines is a fact that has long been admitted in the textile industries: witness the numerous electric plants which have been installed of recent years in spinning and weaving mills. The favorable results that have been obtained from the use of the electric motor for operating spinning machines, are due not only to its recognized advantages as a source of power, but also to the fact that science has succeeded in obviating the primary difficulties which retarded the application of electricity to the delicate and complicated plant used in spinning mills.

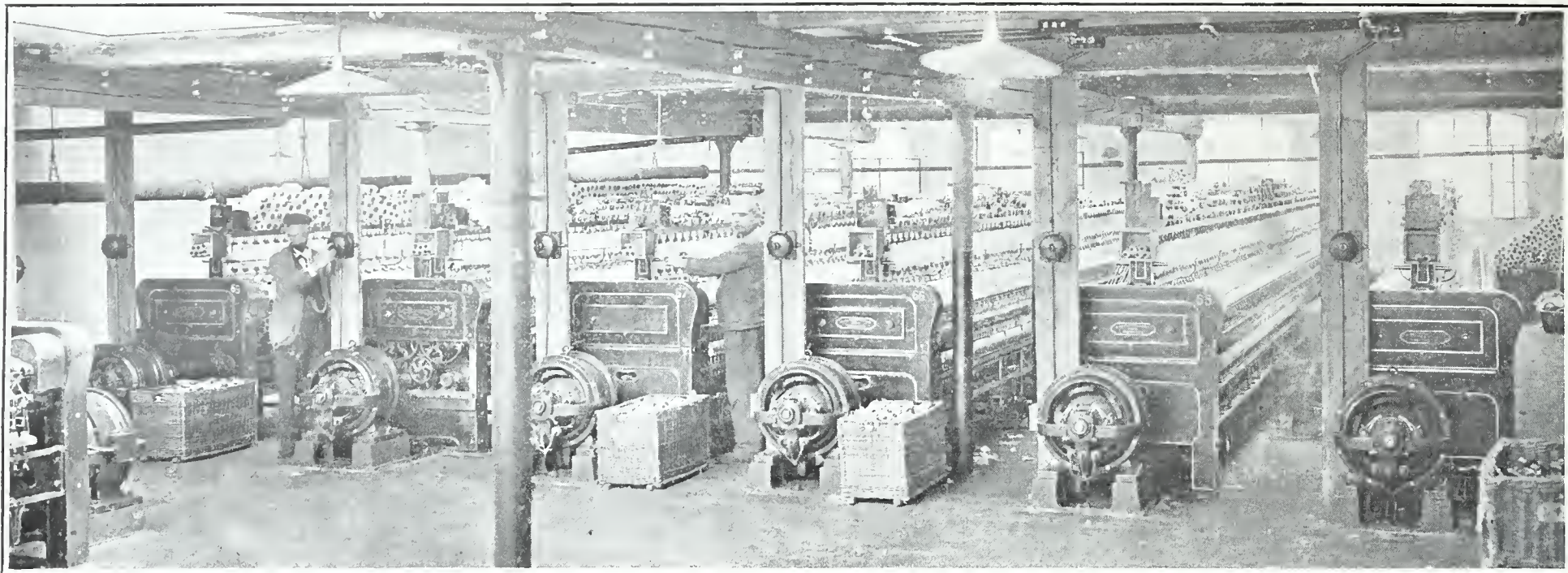
The illustrations show some modern installations of electric driving plants. It should be noted that the system of current to be selected—continuous or rotary—depends upon local conditions. Where, for instance, steady regulation of the number of revolutions is required, continuous current motors (which are adapted for regulation in shunt) have been found to be most advantageous. The costs of installation are considerably higher than in the case of rotary current motors; but the working is much cheaper, as the regulation is effected without loss of energy.

The use of rotary current motors, on the other hand, is advisable wherever no regulation is required during working periods, or where the number of revolutions of the spinning machines may be altered while running in the ratio of 3:2 or 4:3. In the latter case the motors are of the change-over pole short circuit type with two separate windings, of which one is arranged for 1,500 and 1,000 revolutions respectively, and the other for 1,000 and 750, when running light. In cotton spinning mills the winding for the low number of revolutions will then be so arranged that it can be changed so as to start the machine at half the said lower number of revolutions.

If separate drives are to be provided for, it is advisable either to couple the motor



RING SPINDLE SPINNING MACHINE DRIVEN BY AN ELECTRIC ROTARY CURRENT MOTOR WITH COLLECTOR RING ARMATURE.



COMPLETE VIEW OF THE SPINNING ROOM OF J. A. LINDGENS ERBENS' SPINNING MILLS.

direct to the drum shaft, or else to have direct transmission by means of toothed wheels, the counter wheel being arranged to run directly upon the drum, while the motor is mounted to run on rails so as to adjust the engagement of the teeth with greater ease, and in order to facilitate the dismounting and alteration of the transmission gearing.

The first illustration shows the operation of a cotton spinning machine belonging to the Chemnitz Aktienspinnerei by means of a change-over pole short circuit motor with toothed wheel and intermediate gearing.

The number of revolutions made by the motor is 700, or 1,500 when running light, the lesser number of revolutions being used solely for starting the spinning machine.

These two illustrations show spinning mills belonging to Messrs. J. A. Lindgens Erbens, of Hochneukirch, adapted for the use of an electric plant by the Siemens-Schuckert Works; and are single electric motors for driving ring spindle spinning machines.

For driving each ring spindle, use is made of a rotary current motor with collector ring armature which makes 825 revolutions per minute, and has an efficiency of 6.5 H.P. The shaft of the motor is coupled direct, by means of an elastic leather coupling, to the driving drum of the spinning machine. The spindles run at a speed of about 9,000 revolutions per minute. The motor is started through an oil starter and a special switch which is

located on the head of the spinning machine.

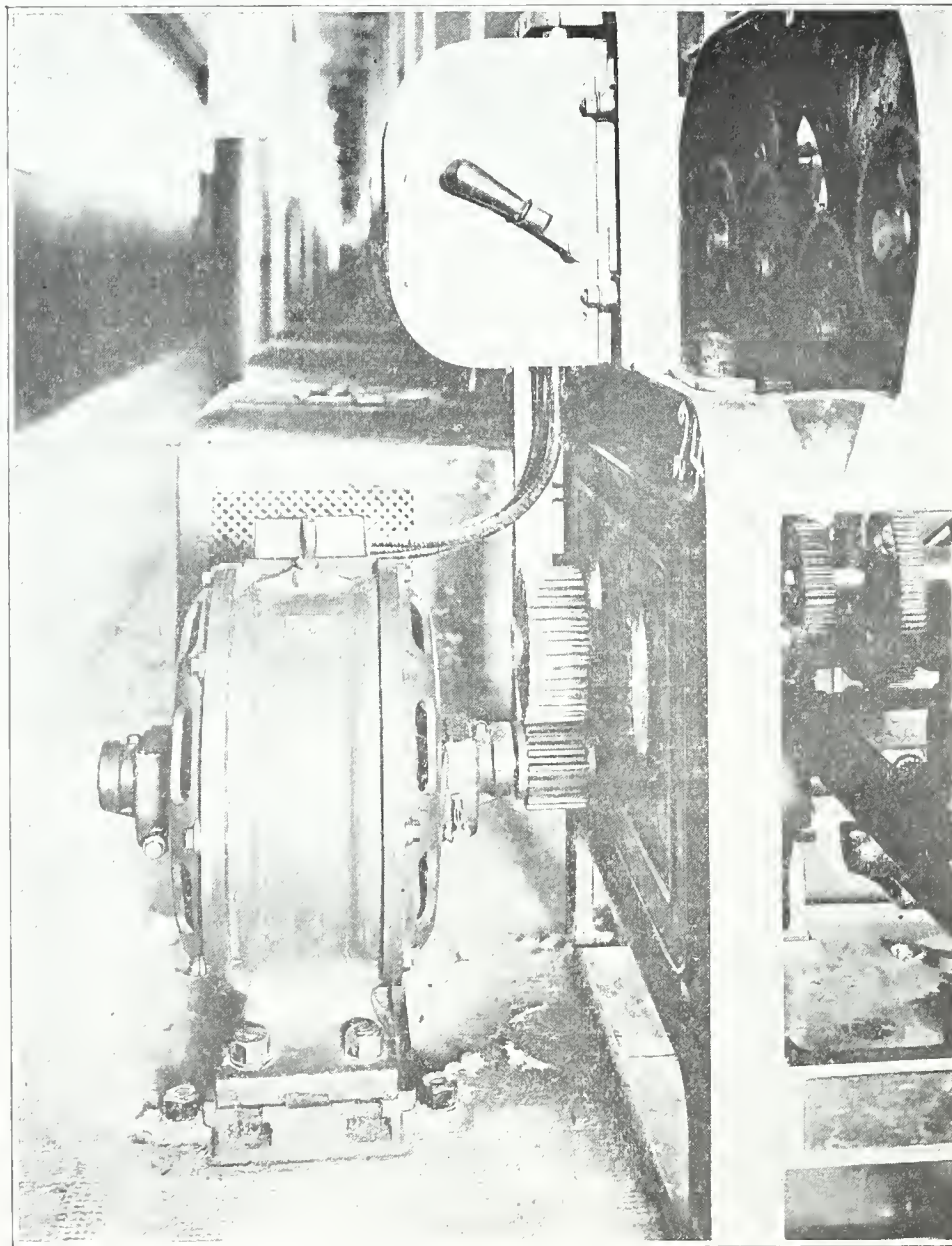
The electric plant used for driving

these ring spindles has attained most satisfactory results. It has been especially observed, that the small in-

terruptions in working—which formerly occurred when belt transmissions were used—now no longer take place. The spinning machine is started in revolution in the shortest possible space of time, even after long stoppage on holidays, when it is difficult to start owing to the contraction of the spindle cords. Starting is effected with perfect uniformity despite the high speed. Owing to the firm connection between the driving motor and the shaft of the spinning machine, all irregular running is obviated. This reduces the percentage of broken threads and a more uniform product is secured.

Experience has shown, furthermore, that the degree of efficiency with which the power is transmitted is higher when the machine is at a distance from the power producing centre, than with the former system of transmission. Other advantages of the electric motor are the saving in lubricating material, avoidance of wear and tear of belting, greater cleanliness of the cotton, and finally a diminution of dust, there being no belting to scatter broadcast the layers of dust accumulated thereon.

The plant used for this purpose consists of a rotary current generator; there are also two continuous current dynamos for reserve purposes, and a battery of accumulators. To the continuous current service for the lighting plant there are also connected some motors for the locksmith's, the carpenter's, and the cylinder maker's shops, and also for driving the fans or ventilators; and finally, the motor for working the conveyor plant depicted in Figure 3.



ROTARY CURRENT MOTOR WITH TOOTHED WHEEL, AND CONNECTING GEAR DRIVING A SPINNING MACHINE.

Electric Cattle Guard for Fences.

An electrically energized fence has been patented by Mr. Albert Duy McNair, of Dallas, Texas.—The invention relates to fences and admits of general use, but is of special value as applied to fences intended to prevent the escape of animals, such as cattle, horses, and hogs, therethrough, and embodies means for exciting the wires of the fence electrically, so as to give the animals an electric shock upon making the proper con-

tact with the wires. It also relates to time-controlled mechanism for rendering the electric action of the fence intermittent, so as to save the battery-current. In carrying out the invention, a Ruhmkorff coil is provided with a primary winding and a secondary winding. A fence is connected with the secondary winding, and a circuit is employed for energizing the primary winding, this circuit being provided with a contact. Time-controlled mechanism is employed for throwing the primary winding into and out of circuit.

Electric Light for Revolvers.

Eugene C. I. Cailliez, of Lens, France, has patented in this country an application of electric lights to revolvers or other firearms, permitting them to be used during night-time or in darkness.

The invention consists essentially in the adaptation of an electric lamp with a reflector at the end of the barrel, in connection with a battery or source of electricity situated, preferably, in the

butt, which can be instantly lighted by means of a contact placed in the handle, and closing the circuit. This application can be adapted to all kinds of firearms, but is especially designed for those used for personal defense, destined for firing at short distances. It reveals the object aimed at before firing, and at the same time leaving the marksman in complete obscurity. If used against a malefactor who succeeds in escaping, at least his features have been seen.

TO TEST HIS AUTHORITY.

Patent Attorneys Call on Assistant Secretary Ryan.

Messrs. W. Cranch McIntire and Arthur P. Greely, representing the attorneys practicing before the patent office of the United States, called on Acting Secretary Ryan of the Interior Department and filed a formal protest against the order of the commissioner of patents closing the docket of the patent office, and announcing that no cases will be heard either by the commissioner or the assistant commissioner during the months of July and August. Messrs. McIntire and Greely informed Judge Ryan that, in the opinion of the patent attorneys who have business before the patent office, the order of the commissioner will work to the detriment of public business and might cause serious damage and loss in certain cases. They declare the commissioner of patents has no authority to close the docket or suspend the hearing of cases during these two months, and ask that the acting secretary investigate and cause the order to be annulled.

The paper filed with the Interior Department follows:

"Representing the Patent Law Association of Washington City and acting on its behalf as its 'Committee on Affairs in the Patent Office,' we respectfully call attention to the fact that the Commissioner of Patents is absent from the city and is expected to be absent for some time, and that we have been informed that the commissioner, before taking his departure, instructed and directed the assistant commissioner not to consider or determine any question of a judicial or quasi-judicial character during the absence of the commissioner.

"It also appears by a published notice in the Official Gazette of the United States Patent Office during the month of June, 1905, that no hearings will be had by the Commissioner of Patents on any appeals during the months of July and August.

"Inconvenience to many applicants and their attorneys frequently occurs as a result of their inability to be heard upon questions determined only by the head of the bureau, and in behalf of such applicants and attorneys we respectfully request that the Assistant Commissioner of Patents may be directed to assume and discharge the duties pertaining to his office as required by law, the instructions of the Commissioner of Patents to the contrary notwithstanding, and we beg to call your honor's attention to section 178 of the Revised Statutes, which seems to be mandatory, and is as follows:

"Section 178. In case of the death, resignation, absence, or sickness of the chief of any bureau, or of any officer thereof, whose appointment is not vested in the head of the department, the assistant or deputy of such chief or of such officer, or if there be none, then the chief clerk of such bureau, shall, unless otherwise di-

rected by the President, as provided by section 179, perform the duties of such chief or of such officer until a successor is appointed, or such absence or sickness shall cease."

"Attention is called to a decision by the Court of Appeals of the District of Columbia in re United States ex rel. Stapleton vs. Duell, Commissioner of Patents, reported in Commissioner's decisions for 1901, page 359, in which reference is made to section 178, Revised Statutes, above quoted.

"It may not be improper to refer to the fact that under all previous administrations of the Patent Office there was never any publication or order refusing the right to be heard upon appeals during any specified period of time, and that it was the universal custom for the Assistant Commissioner of Patents to assume and discharge each and every duty imposed by the law upon the Commissioner of Patents, during the absence of the commissioner.

"The request herein is made without any intention or desire of criticising the action of the commissioner, which we assume was based upon the opinion that the law invested him with authority to designate and define the duties to be performed by the assistant commissioner during the absence of the former, whereas the authority vested by the acts making appropriations for the salary of the assistant commissioner, obviously, and in view of section 178 of the Revised Statute, related solely to duties to be performed by the assistant commissioner when the commissioner might be officially present and on duty."

The action of the patent attorneys is primarily to test the authority of the commissioner, and is the culmination of a dissatisfied condition that has existed among the patent attorneys for months past. The custom of suspending hearings during the summer months, it is declared, is something that is entirely new in the practice of the office, and was not inaugurated or heard of until the commencement of the administration of the present commissioner in March, 1901. Therefore, under the administrations of all the predecessors of the present commissioner, neither the hearings were suspended nor the docket closed at any time during the year. It is stated that the position of the commissioner of patents is slightly different from that of any other bureau chief under the government, in that his assistant, known as the assistant commissioner, cannot act as commissioner unless he is so deputized by the head of the office. The commissioner is, therefore, the only authority in the office while he is actually in the city. It has been the custom of previous commissioners to deputize their assistants to act as commissioners whenever they had occasion to leave the city so that the business of the office would not be impeded. It is claimed that the act creating the office of assistant commissioner was enacted by Congress for the express purpose of giving the commissioner an assistant that he could deputize to perform some of the duties of his office, which are, in a measure, judicial, rather than administrative, in order that he

might leave the city and gain rest when he thought he was in need of it.

The business of the patent office, it is declared by the protesting attorneys, is second in importance to none of the government service, and it is growing every day. It is, therefore, imperative that there should be no interruption. Inventors are as prolific in ideas during the summer as during the winter, it is claimed, and if two months are dropped out of the business year of the office having charge of the work of the inventors and the protection of their rights, the damage to their interests will be serious.

It is hinted that there is some little feeling behind the protest that was filed today, and that it is the desire of the patent attorneys to make a supreme test of the authority of the commissioner that has led them to take this action. There has been friction between Commissioner Allen and the attorneys practicing before him ever since he came into office, it is declared, and strong efforts are to be made to determine the extent of the commissioner's authority over the business that comes into his office. That he has authority to suspend the hearing of cases during the months of July and August, when he has an assistant in the city in charge of the work of the office, is absolutely denied by the attorneys who have business before him, and they are determined to find out from a higher authority of just what his powers consist.—*Washington Star*.

Innovations in Street Railway Equipment.

The street railway system of Boston is said to be the best in the country, and it has gained this enviable reputation by the introduction of several novelties in mechanical ingenuity. One of these innovations, looking to the saving of seconds, consists of opening and closing the doors of the cars by compressed air power. This plan permits the side doors of the overhead and subway trains to be used as exits at all stations, and during the entire day.

In the overhead systems commonly in use, the standard car has a door in the middle of each side, to be used as an exit during rush hours. Pulling a lot of levers, which takes the attention of the trainmen from their other duties and is wearisome besides, seemed a clumsy method in this automatic age. So the vice-president of the Boston road began looking for something better, and the result was the present device.

The automatic door is extremely simple. A rod inside the woodwork of the car is attached at one end to the back of the sliding door and fitted at the other into a piston that can apply compressed air so as to move the rod in either direction. The air, which is under pressure of sixty pounds to the square inch, comes from a tank beneath the car that is kept full by an automatic electric pump. The valve that controls the mechanism is affixed to the end of the car, where it is directly under the hand of the trainman, who stands between two cars and operates the doors of both simply by a turn of the wrists.

The door can be stopped instantly, whether it is opening or closing, and its rapidity of movement can be perfectly regulated. As a safeguard against any sort of accident, the outer edge is protected with a pneumatic

cushion, so that if it should close upon a passenger's fingers, say, they would not even be bruised. If a skirt or coat were caught in the door, the slightest pull would release the garment without injury to the fabric, and there is no chance of a person whose clothing is accidentally entangled being dragged by the train.

A still further application of the mechanical principle of the automatic door, serves to overcome a second great difficulty in getting trains away from stations quickly: the necessity, with the old type of car, of the passengers entering by narrow platforms, with swinging gates, and turning a corner to get inside the coach. For this purpose they were put into service on the Boston elevated, twenty-four easy access cars which have no platforms at all, the space given to the platform in the old type of coach being added to the car body. All doors are in the sides, and those for exit in the middle and those for entrance at either end, so that a passenger steps directly from the station platform into the car, where the broad sides give plenty of room for distributing the load, as railroad men call it. The sheltered standing room is thus increased, and the possibility of accidents to passengers on an open platform is eliminated. There is a small platform on which the train hands stand, but the passengers cannot go from one car to another while a train is in motion.

This device serves to save time even beyond expectations. Many seconds are gained in a day's run by the new equipment, and the economy of time is helped out by another device that has proved its utility—the motorman's automatic electric signal.

The elevated management has always maintained that the only safe way to run its trains is to have all doors and gates closed tightly before the starting bell is given, and its judgment has of course been justified. But the operating officials, who worry over the loss of a fraction of a second, wondered how they were going to hurry things if the first four cars of a train were ready to start before the fifth one was, and had to wait until a bell signal was passed along from platform to platform by the pulling of a cord. Finally somebody conceived the idea that on the easy access cars, anyway, the closing of the doors might be made to give an electric signal automatically. Each door is connected with an electrical circuit which is broken by the opening of the doors, and is completed only when all the doors are closed. As one car after another discharges and loads, the signal circuit is built up, section by section, and the shutting of the last door completes it and rings the starting bell.

The trains got away from stations so much more promptly as a result of this scheme that the engineers cast about for something similar that they could apply to the old type of cars. They adopted the device of concealing, in the hood over the platform, a lever which, when pulled down, closes a section of the electric circuit that rings the motorman's signal. The levers on the adjoining platforms are connected by means of a piece of bell cord, and when the side doors and gates are closed, the trainman on each car, at intervals, pulls down his cord and holds it until the motor starts. When the last section of the circuit is closed by pulling down the cord on the last car and closing the last door, the motorman's bell rings automatically.

It seems that the time saved by these means would be infinitesimal, but the train dispatchers at the terminals know what a difference it makes in the course of a day's work.

CLEVER NEW PATENTS.

HYDRAULIC RAM.—ELECTRIC RAILWAY SWITCH.—THILL SUPPORT.

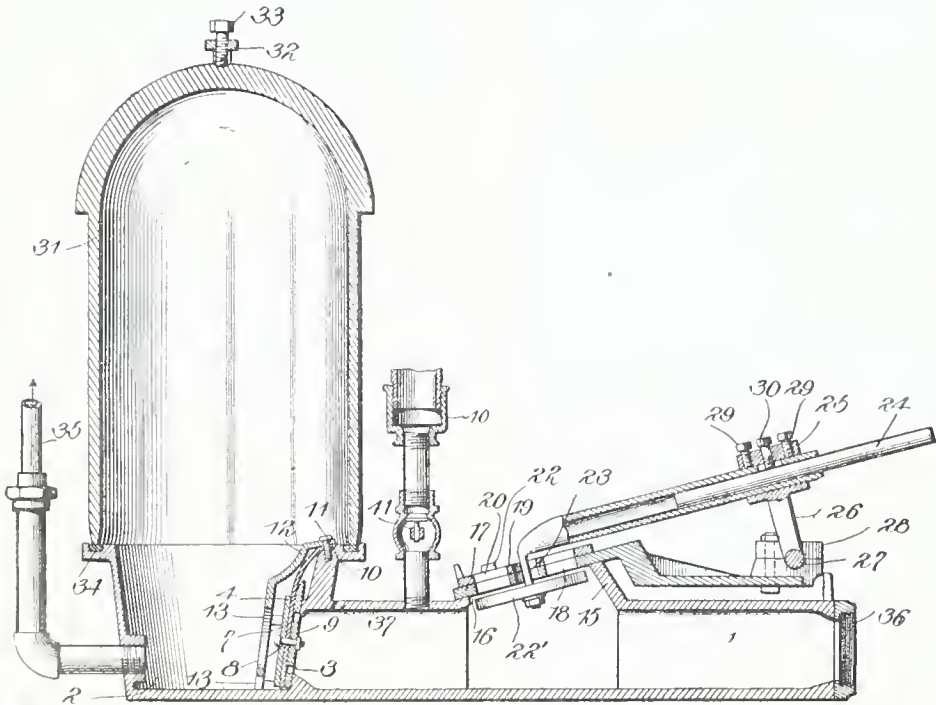
Hydraulic Ram.

A decided improvement in hydraulic rams has been invented by James M. Kline, of Beavertown, Pa.—One object of the invention is to provide a ram in which the escape-valve is adjustably weighted, so that a resistance to the closing movement may be altered in accordance with the volume, pressure, or head of the water. Another object is to provide a ram in which a volume of impure water, such as the water of a running stream, may be employed to pump pure water, as from a spring, to a house or other point of consumption.

The entrance-chamber 1 of the ram communicates with the air-chamber 2, and between these two chambers is a check-valve 3 to prevent the backflow of water. The water-chamber 1 is provided with an opening 16, over which is seated a cover 17. The cover 17 is provided with a number of openings 18 and has a revoluble regulating-disk 19, provided with similar openings 20.

The escape-valve 22 is formed of a thick disk of rubber carried by a bar 23, that extends through a central opening formed in the disk 19 and the cover 17, and the main body of the bar being hollow is adapted to receive a slidable weight 24. The rear end of the bar extends through a collar 25, formed at the upper end of an arm 26, the lower end of said arm having trunnions 27, adapted to suitable bearings in blocks 28, that are carried by the rearwardly-extended portion of the cover-plate 17. The hollow bar 23 is locked in the sleeve or collar 25 by means of a pair of set-screws 29, while the weight is held in any position to which it may be adjusted by means of a set-screw 30, passing through a threaded opening in the sleeve or collar and an auxiliary opening in the hollow bar 23. This weight may be adjusted in order that greater or less resistance may be offered to the closing movement of the valve, and thus govern the speed of operation of the ram and the pressure imparted to the water, so that the water may be elevated to a greater or less height.

The air chamber has a removable dome 31, that is seated on the upper flange of the body portion or box of the air-chamber and is held in place by means of a yoke 32.



The education-pipe 35 is arranged in a direct horizontal line with a water-supply pipe 36, so that the course of the water entering the water-chamber and from thence passing to the air-chamber, may be in a direct line with the discharge and all of its power utilized, the force of the flow being added to some extent to the reactionary force due to the expansion of air in the dome 31, in order to check the water through the pipe 35. The casing is provided with an opening 37 through which air is admitted to renew the supply in the air-chamber.

In the starting of the operation, it may be assumed that the two bodies of water entering through the pipes 36 and 40 will both flow in the direction of the escape-valve 22; but owing to the superior volume of impure water entering pipe 36, a comparative proportion of the spring water will escape; but the inflow will be sufficient to prevent the purer water from passing beyond the pipe 40. The usual operation will then follow at regular intervals, the escape-valve being closed, and the water in the chamber 1 will be moved in the direction of the air-chamber 2, opening the check-valve 3 against the pressure of air in the chamber 2. It is only the spring-water, however, which enters the air-chamber. On the closing of the check-valve 3, and the regurgitation of the water, the small body of spring-water left in the water-chamber will tend to force back the impure water, and both bodies of water will, as before, flow in the direction of the escape-valve.

Electric Railway Switch.

Specific improvements in electric railway switches have been patented by Messrs. Edward A. Gray and Silas H. Brand, of Chicago, Ill.—The invention has for its principal object to provide an electrically-actuated switch mechanism, whereby a train or an approaching car may be caused, through suitable electromagnets, to move the switch in either direction.

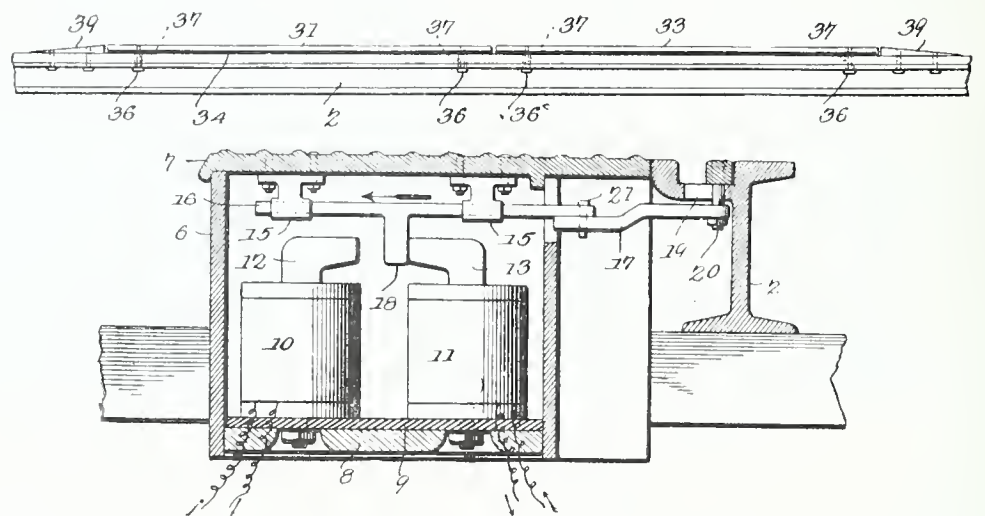
A further object of the invention is to provide a switching device adapted principally for use in connection with electrical railway systems of that general class in which the motor power is supplied by an overhead or underground conductor, and returned by one of the traffic-rails or by other suitable conductors, provision being made for utilizing the current in effecting movement of the switch.

A still further object of the invention is to provide a novel form of switch-operating mechanism which may be readily applied to existing switches, and

readily disconnected therefrom without loss of time should the mechanism become disarranged, and thus render it necessary to operate the switch manually.

A still further object of the invention is to provide novel means for insulating the car-wheels from the main traffic-rails as they approach the switch, so that the current, instead of passing directly to the rail or rails, may be directed through the electromagnets to the switch.

Associated with the ordinary movable switch member, there is employed a box or casing 6 arranged directly adjacent thereto, and having a removable lid or cover 7 that is accessible independently of the switch member. A pair



of electromagnets 10, 11, is arranged in the box or casing, and hangers 15 are pendent from the cover. An armature supporting slide 16 is guided in the hangers and carries an armature 18 that co-operates with the magnets, and a link connection 17 is made between the switch, this connection being detachable when the cover, armature slide, and armature are raised.

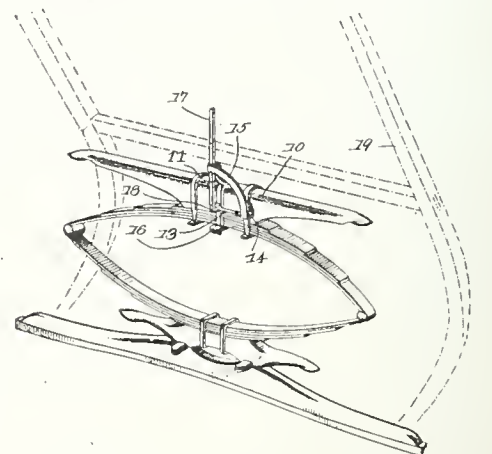
On top of the traffic-rails at a point adjacent to the switch, are arranged insulated plates or strips, onto which the car passes when approaching or leaving the switch. In the present instance two plates 31, and 33 are shown, and each of these plates is formed of a comparatively thin strip of steel that rests on a strip 34, formed of a suitable insulating material, both the insulating and the steel strip being disposed immediately above the tread of the traffic-rails. The metallic strips are held in place by bolts 36, that are surrounded by sleeves or collars 37, formed of insulating material. The sets of plates 31, and 33, are spaced from each other and not in electric communication. The metallic plates are at some distance above the tread of the wheels, and in order that the car-wheels may be properly guided to position, a number of guide-plates 39 are used that are bolted to the treads of the traffic-rails, so that the car-wheels may be raised and lowered without jar. The plate 31, is connected to a line-wire leading to the traffic-rails at a point adjacent to the switch, and in said line-wire the coil or coils of the electromagnet 11 are connected, so that a current sent along this line will energize the magnet, and the latter, by moving the armature 18, will shift the switch-tongue in such manner as to open the main line. When a car is approaching the switch, it will first mount the strip 31; and should the siding-line be open and the motorman desire to continue on the main line, he will close his motor-circuit so that a current from the main conductor will pass through the motor and the supporting-wheels of the car to the strip 31, and from thence along the line-wire to the electromagnet 11, and from thence to the return rails, energizing the electromagnet and moving the switch to open the main line. Before passing onto the plates or strip 33, the motor-circuit will be cut off and the previously-acquired momentum allowed to carry the car from the strip 33, the car then descending to the traffic-rails and continuing on the main line.

Thill Support.

A patent has been granted to Cullen D. White, of Union City, Tenn., on a simple thill-support.—The invention relates to devices for attachment to vehicles for supporting the shafts or thills in an elevated position when not in use. It has for its object to provide a simple and inexpensive device attachable to any style or form of buggy, carriage or other vehicle, and by means of which the thills may be supported in an elevated position and quickly released when required. In carrying out the invention, a bracket is employed for detachable connection to the running gear of a vehicle and has a vertical arm 11, and a horizontal arm 13, each with a lateral stop. A stop-bar 17 is pivoted to the bracket and swings across the path of the thills when elevated, and is supported alternately in its elevated and de-

pressed positions by the arms and their lateral stops. A segmental guard 15 connects the extremities of the stop-arms.

The guard member 15 is an impor-



tant feature of the invention, as it affords a firm support for the members 11 and 13, and also firmly supports the bar 17 at all points in its travel.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

CHISHOLM et al. v. RANDOLPH CANNING CO.

(Circuit Court, E. D. Wisconsin. December 15, 1904.)

PATENTS—ANTICIPATION—METHOD OF HULLING PEAS.

The Chisholm patent, No. 421,244, for a method of hulling peas, held valid, as against the claim of anticipation by the Faure French patent of May 15, 1883, and the first certificate of addition thereto—it being shown that the Faure machine is incapable of performing the operation of hulling by impact, which is the method of the Chisholm patent; also, held infringed.

CHISHOLM et al. v. CANASTOTA CANNING CO.

(Circuit Court, N. D. New York. February 3, 1905.)

PATENTS—ANTICIPATION—METHOD OF HULLING PEAS.

The Chisholm patent, No. 421,244, for a method of hulling peas, held not anticipated, valid, and infringed.

ENCYCLOPÆDIA BRITANNICA CO. v. WERNER CO. et al.

(Circuit Court, D. New Jersey. March 10, 1905.)

COPYRIGHTS—INTERIM COPYRIGHT ACT—CONSTRUCTION.

The interim copyright act (Act Cong. Jan. 7, 1904, 33 Stat. 4, c. 2), passed for the protection of exhibitors of foreign literature at the Louisiana Purchase Exposition, provides that copyright protection shall be extended to books, etc., published abroad, copies of which are intended for exhibition at the Louisiana Purchase Exposition; that one copy of any book copyrighted under the provisions of the act shall be delivered at the copyright office of the Library of Congress, with a statement duly subscribed in writing that the book is intended for such exhibition; and that the author, on complying with the act, shall have the sole liberty of printing, reprinting, publishing, and vending the same within the limits of the United States for the term of two years, and if during such time two copies of the original text of the book, or of a translation in the English language, printed from type set within the United States, or from plates made therefrom, are deposited in the copyright office, etc., such deposit shall extend the copyright for the full terms provided for by Rev. St. tit. 60, c. 3 [U. S. Comp. St. 1901, p. 3405.] Held, that such act did not apply to a foreign publisher of a book previously published in English, and sold by American publishers in the United States.

LANAHAN et al. v. JOHN KISSEL & SON.

(Circuit Court, E. D. New York. February 24, 1905.)

1. TRADE-MARKS—INFRINGEMENT—"HUNTER WHISKEY."

Complainants and their predecessor since 1860 have sold a brand of whiskey for which they adopted and used as a trade-mark the arbitrary word "Hunter," and their product became widely known throughout the country as "Hunter Whiskey," and was the only whiskey known to the trade by that name, although the word "Hunter" was used by some other small dealers at various times, in combination with other words, as the name of a whiskey having a local market. Purchasers in bulk in some cases bottled the whiskey, using on the bottles white labels furnished by complainants, having thereon the words "Hunter Baltimore Rye Whiskey," with the name of the immediate vender as bottler, and also a picture of a uniformed man on horseback. Complainants also sold some of their product in bottles having a dark label with the word "Hunter," in white letters, conspicuously shown thereon, and a white medallion in the center, containing the same picture. After 1900 defendants began the sale of whiskey in bottles having a white label, with the picture of a huntsman on foot, with dogs, thereon, and the words "White Label Hunter Whiskey, Bottled

by," followed by their own name and address. Held, that such labels were an infringement of complainants' exclusive right of trade-mark in the word "Hunter," and were calculated and evidently designed to induce the belief on the part of purchasers that the whiskey was that of complainants, bottled by defendants.

2. SAME—RIGHT TO INJUNCTION—PREVENTION OF THREATENED INJURY.

The infringement of a trade-mark implies injury, and, where it is of such character as is calculated to deceive purchasers, the owner is not bound to wait until injury has actually resulted, before he can maintain a suit for relief by injunction.

M. SOLMSON & CO. v. BREDIN et al.

(Circuit Court of Appeals, Fourth Circuit. February 21, 1905.)

1. PATENTS—INVENTION—WEATHER STRIPS.

The Sims patent, No. 424,905, for a flexible metallic weather strip, consisting of a thin strip of zinc doubled on itself in the center to form a rib, which projects into a groove in the edge of a sliding window sash, while the edges of the strip are turned at right angles to the rib to make a flat back, which is fastened in the recess of the casing, was not anticipated and shows invention. Claims 2 and 3, also, held infringed.

2. SAME—INFRINGEMENT.

The particular form of the back of a patented weather strip, or the manner of fastening it to a window casing by making holes therein for the tacks used, are not essential parts of the invention, and a variation therein does not avoid infringement, where the principle of the invention is appropriated.

LAUMAN v. URSCHER WHITE LIME CO.

(Circuit Court of Appeals, Sixth Circuit. February 17, 1905.)

PATENTS—INVENTION—PROCESS OF SLACKING LIME.

The Lauman patent, No. 678,500, for a process of slacking lime by agitating it in a closed cylinder with sufficient water to convert it into a dry hydrate of lime, is void for lack of patentable invention, in view of the prior art, and especially of the process shown in the Adams patent, No. 309,383.

ROBERTS v. BENNETT.

(Circuit Court of Appeals, Second Circuit. January 20, 1905.)

1. PATENTS—DESIGNS—METAL BASKET.

The Bennett design patent, No. 25,927, for a design for a basket made of metal, is void for anticipation by the patentee's prior mechanical patent No. 541,805, and also because the design shown has no novel element of beauty to commend it to the eye and render it patentable.

2. SAME—ACTION AT LAW—FOR INFRINGEMENT—MATTERS OF WHICH COURT MAY TAKE JUDICIAL NOTICE.

In an action for infringement of a patent for a design for a basket, irrespective of the evidence of anticipatory devices, the court may take judicial notice of the ordinary and conventional bushel basket.

3. SAME—QUESTIONS FOR COURT.

Where a patent is void on its face, or is shown to have been anticipated by prior patents, or where the presumption of novelty arising from the grant is overcome by proof of the prior art, or by facts of which the court may take judicial notice, it is the duty of the court to so instruct the jury in an action at law for its infringement.

CALCULAGRAPH CO. v. WILSON.

(Circuit Court, D. Massachusetts. March 15, 1905.)

1. PATENTS—INFRINGEMENT—VIOLATION OF INJUNCTION.

The Hamilton patent, No. 424,291, for an apparatus for recording measurements of time, space, or quantity, claim 1, and the Abbott patent, No. 593,320, for a calculagraph, which embodies the invention of the Hamilton patent in a machine for automatically recording the length of time a long-distance telephone has been in use, claim 1, held infringed by a new machine, made by defendant after having been enjoined from infringement of said claims, and the offering for sale of such new instrument to have been a violation of both the preliminary and permanent injunctions, constituting a contempt of court.

2. SAME—PROCEEDINGS FOR CONTEMPT.

The attempt of a defendant who has been enjoined from infringement of a patent to see how closely he can imitate the patented device without infringement is not looked upon with favor by the courts, and where the new structure in fact infringes, it is no defense to contempt proceedings for violation of the injunction that defendant acted under advice of counsel.

CROWN CORK & SEAL CO. OF BALTIMORE CITY v. STANDARD STOPPER CO. et al.

(Circuit Court, S. D. New York. October 25, 1904.)

1. PATENTS—NOVELTY—SUFFICIENCY OF DESCRIPTION IN PRIOR PUBLICATION.

A prior publication in a paper, patent, or otherwise, will not negative the novelty of an invention unless it describes a complete and operative invention capable of being put into practical operation, or contains such a disclosure of the invention that any omission would ordinarily be supplied by one skilled in the art.

2. SAME—INFRINGEMENT—IMPERFECT CONSTRUCTION OF INFRINGING ARTICLE.

Infringement cannot be avoided by simply constructing the patented thing so imperfectly that its utility is diminished, but such a colorable variation or change is merely evidence of an attempt at evasion by narrowing the function of usefulness of the device infringed.

3. SAME—BOTTLE STOPPERS.

The Painter patents, No. 468,258, covering broadly a bottle-sealing device consisting of a flat disk of wood or similar material inclosed in a hard metal cap, preferably of tin plate, having a pendent flange provided with corrugations, and adapted to be bent into locking contact with a shoulder on the neck of the bottle, and No. 582,762, for a specific form of construction of such general invention, were not anticipated nor deprived of patentable invention or novelty by anything in the prior art. Claims 1, 2, and 3 of the first patent and 1 and 2 of the second also held infringed by the device of the Patterson patent, No. 682,995.

WILLIAMS CALK CO. v. NEVERSLIP MFG. CO.

(Circuit Court, M. D. Pennsylvania. February 14, 1905.)

1. PATENTS—HORSESHOE CALK.

The Williams patent, No. 666,583, for a horseshoe calk, is void for double patenting, in view of the previous design patent to the patentee for the same device, or, if not, is for a combination of old elements, and only entitled to a very narrow construction, and, as so construed, held not infringed.

2. SAME—DESIGN AND MECHANICAL PATENTS—ANTICIPATION.

A design patent will operate as an anticipation of a subsequent patent to the same inventor, just as though issued to another person, where everything to be found in the one is portrayed in the other. Cary Mfg. Co. v. Neal (C. C.) 90 Fed. 725, followed; Collender v. Griffith (C. C.) 2 Fed. 206, dissented from.

3. SAME—DOUBLE PATENTING.

A design patent will render void a mechanical patent subsequently issued to the same inventor within two years, as a matter of double patenting, where the two are indistinguishable in their characteristics and are manifestly the outcome of the same inventive idea.

4. SAME—PRIOR INVALID PATENT.

The fact that a prior design patent is invalid, because the subject of it is not within the law, will not save a subsequent mechanical patent for the same device from constituting a case of double patenting; the patentee having enjoyed a nominal, and for a time an apparently unquestioned, monopoly therefrom, and it is not being open to him to set himself right for a mistake which he has made in the character of the patent by taking out another and different one for substantially the same thing.

5. SAME—HORSESHOE CALK.

A horseshoe calk, the whole value of which consists in the uses to which it can be put, and to which the mind of the inventor is therefore addressed, cannot be covered by a design patent.

6. SAME—DESIGNS—UTILITY OF—WORDS AND PHRASES.

The utility intended by Rev. St. § 4929 [U. S. Comp. St. 1901, p. 3398], authorizing the granting of a patent for any new, "useful" and original shape or configuration of any article of manufacture, is artistic, and not practical. What is meant is that the design shall constitute something which is artistically worth the while, and is not frivolous or hurtful.

7. SAME—INFRINGEMENT.

Similarity to the eye of a person of ordinary intelligence and observation is what governs on the question of the infringement of a design patent. Useful or functional features cannot be resorted to to make this out.

8. SAME—HORSESHOE CALK.

The Williams design patent, No. 20,725, for a horseshoe calk, is void, because the subject of it is not patentable as a design; also, if of conceded validity, held not infringed.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO. v. CUTTER ELECTRIC & MANUFACTURING CO.

(Circuit Court, E. D. Pennsylvania. March 8, 1905.)

PATENTS—CONSTRUCTION OF CLAIMS—NEW COMBINATION OF OLD ELEMENTS.

Where claims for a new combination of old elements have been rejected by the Patent Office, and the action acquiesced in by the applicant, and only subsequently allowed when so amended as to contain a single new feature, the patent will be restricted to that new element, and is not infringed by a device which uses the other elements if that one is omitted.

2. SAME—INFRINGEMENT—ELECTRIC CIRCUIT BREAKER.

The Wright & Aalborg patent, No. 633,772, for an automatic electric circuit breaker, is limited by the prior art to a single new element in the combination shown. As so construed, held not infringed.

CURTIS v. ATLAS CO.

(Circuit Court, D. New Jersey. March 11, 1905.)

PATENTS—INFRINGEMENT—TREAD FOR BICYCLE PEDALS.

The Curtis patent, No. 533,867, for a detachable rubber-faced foot-rest for bicycle pedals, claims 1 and 2, were not anticipated, and disclose invention. Claims 3 and 4 are void, as too indefinite and uncertain. Said claims 1 and 2 also held infringed by the device of the Wirtz patent, No. 679,043.

NATIONAL PHONOGRAPH CO. v. AMERICAN GRAPHOPHONE CO. et al.

(Circuit Court, D. Connecticut. March 30, 1905.)

1. PATENTS—INJUNCTION—WHEN GRANTED.

Courts must refuse a preliminary injunction, on affidavits alone, against the conjoint use of two patents, one of which has expired by reason that it was originally taken out both at home and abroad, and its life expired with the term of the foreign patent, which was first taken out, and the other and broader of which has not been adjudicated in the courts as to its features of invention, upon a seriously contested hearing on the merits.

2. SAME—DISSOLUTION—DAMAGES.

The neglect to disclose to the court the fact of the expiration of one of the patents sued upon at the time of obtaining the restraining order is sufficient ground for giving actual damages to the defendant for injuries to its business caused thereby.

BALL & SOCKET FASTENER CO. v. PATENT BUTTON CO.

(Circuit Court, D. Connecticut. March 16, 1905.)

PRELIMINARY INJUNCTION—GROUNDS.

In a suit to compel the assignment of patents under a contract, where, on the showing made, there is a reasonable probability that complainant may succeed on the merits, he is entitled to a preliminary injunction to maintain the status quo until a final hearing.

WARNER BROS. CO. v. ROBERT N. BASSETT CO. et al.

(Circuit Court, D. Connecticut. March 24, 1905.)

PATENTS—VALIDITY AND INFRINGEMENT—CORSET STEEL TIPPING MACHINE.

The Seeley patents, Nos. 589,579 and 589,580, for tipping machines for fastening the tips on corset steels, in which the steel is passed through one machine which tips one end automatically, transferred to another, which, as it passes back, tips the other end, in view of the prior art, which contained single tipping machines, disclose patentable novelty only in the transferring mechanism, and they are void because such mechanism was not the invention of the patentee, but of another. Also held not infringed if validity is conceded.

MECHANICAL INVENTIONS AND DESIGNS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

Horace L. Frost, Bristol, Tenn. Water Elevating Apparatus.—This apparatus is designed to effect the elevation of water by compressed air. The device includes two comparatively small tanks which are sunk in the body of water to be elevated. Communicating with these tanks is a pipe which rises to the desired level, as for instance, to the top of the well. One of these tanks discharges water through the pipe, while the other tank is filling. By a novel arrangement of floats and valves, compressed air is directed to the tanks alternately to force the water out of said tanks and up through the stand pipe.

John H. Stewart, Navasota, Texas, Agricultural Implement.—This patent discloses a convertible agricultural implement which, while primarily designed for use as a cotton chopper, may be quickly converted for use as a cultivator, weeder, or pulverizer, so that a single implement may be utilized by a simple re-arrangement of its parts, for those various operations necessary for the care and cultivation of a cotton crop, from the time the plants show above the ground until the cotton is ready for picking. A single or double beam plow is equipped with one or a pair of toe-pieces of novel construction, designed for the attachment of one or more gang bars capable of being disposed at various angles across the line of draft. These bars carry gangs of blades or teeth adapted for various uses, that is to say, different bars are equipped with differently formed blades. Any of these bars may be attached to the toe-pieces, accordingly as it is desired to perform different classes of work, as for instance, cultivating, cotton chopping, weeding, etc.

Adam Neer, St. Paris, Ohio. Corn Harvester.—The harvester invented by Mr. Neer is a light draft machine capable of being drawn over the field by one horse, and adapted to simultaneously operate upon two adjoining rows of corn. The machine embodies gathering and guiding mechanism for directing and conveying the corn to the cutters, cutting mechanism for severing the stalks, mechanism for forming a shock in rear of the cutters, a platform for supporting the shock being formed, and mechanism for releasing the platform to dump the shocks from the machine. The machine is exceedingly simple in construction and efficient in operation.

Frank E. Dopheide, Palmyra, Ill, Jar Closure.—The object of the present invention is to enable a jar to be closed and sealed without the hands of the operator coming in contact with the heated contents of a jar. The closure consists of a plug having a lower reduced portion carrying a packing ring, and provided with upper and lower shoulders arranged at an inclination, the intermediate portion between the shoulders being vertical and adapted to compress the packing between it and the neck of a receptacle. The upper shoulder is adapted to compress the ring against a seat formed on the interior of the receptacle. In assembling the parts, the packing ring is placed on the plug, and the latter is interposed between the hands of the operator and the contents of the jar while closing and sealing the same. The device also enables a perfect seal to be obtained, irrespective of the usual imperfections in the form of the mouths of jars and the caps or plugs thereof.

Lawrence Wells Sprague, Greenville, Mich. Voting Table and Ballot Box.—It is the aim of the present invention to provide a combined table and ballot box, and to permit the top of the table to be used for clerical purposes while voting is in progress, as well as for counting the ballots after the polls have been closed. The device will prevent the surreptitious introduction of ballots into the box, or their removal from the same. It is impossible to expose the vote-receiving aperture in the box until the box is locked in the table, and the box cannot be removed or partly withdrawn without closing and locking the vote-receiving aperture. The invention comprises a table having compartments, and provided at its top with apertures. Chutes depend from the apertures and are provided with lids secured in recesses for covering the apertures. The ballot boxes, which are arranged in the compartments of the table, are provided with apertures adapted to register with the said chutes. A slide is mounted on each of the ballot boxes for covering and uncovering the vote-receiving aperture, and means are provided for locking the slide when the ballot box is removed from its compartments of the table, and for releasing the slide when the ballot box is placed in such compartment.

Rev. Louis G. Clark, Helena, Mont. Toy Gun or Catapult.—This patent covers an ingeniously constructed toy designed primarily for use in games to throw missiles, such as balls and feathers, with considerable force and great accuracy. An efficient guard is provided for preventing the actuating means for moving too far and coming in contact with the hand of the marksman. It comprises a frame having spaced sides, in combination with a spring-throwing arm consisting of a loop connected with the front portion of the frame and having its sides separated to form a seat or support for the missile. A catch is mounted on the frame for engaging the spring arm, and the guard depends from the frame in the path of the spring-actuated arm.

Thomas J. Kitto, Webb City, Mo. Railway Cross Tie.—This invention relates to improvements in metallic cross-ties, and is adapted to give the resiliency usually present only in wooden cross-ties. A cushioning plank or piece is arranged on the upper face of the cross-tie in position to receive a rail, and a rail clamp, consisting of a metal cap, is fitted on the cushioning plank. This rail clamp is provided with depending side flanges, which embrace the cross-tie and retain the cushioning plank or piece in position.

William S. Reynolds, Dayton, Ore. Broom Moistener.—The device of this patent is attached to a broom, and supplies fluid therethrough in order to moisten the broom and prevent the raising of dust while sweeping. The broom moistener comprises a reservoir having discharge openings in its bottom, a tube arranged within the reservoir with its lower end surrounding the discharge opening, and a disk valve rotatably mounted in the lower end of the tube and movable over the discharge opening, and adapted to regulate the discharge of the liquid. The valve is operated by a stem, which extends through the tube and projects above the reservoir.

John H. Uhl, Unionville, Mich. Machine for Blocking Sugar Beets.—This machine, which is adapted to operate on rows of beets of any width, is adjustable to cut or block out the beets at the desired intervals. Means are also provided for regulating the depth of the cut, and the blades or cutters are constructed so that they will not tear up the soil or interfere

with the draft of the machine. The machine comprises a wheeled frame, longitudinal shafts located at opposite sides of, and extending rearwardly from, the frame, and provided at their rear ends with blades or hoes. The front ends of the shafts are connected with gearing for rotating them. The blades or hoes are provided with shanks, which are adjustably secured to the longitudinal shafts. The front cutting edges of the blades or hoes are arranged at an angle to the line of draft of the machine, and are provided with projecting flanges having cutting edges. This construction enables the blades or hoes to cut through the soil without tearing up the ground, and owing to the angular disposition of the cutting edges, the blades or hoes will not interfere with the draft of the machine.

James A. Herron, Eskridge, Kans. Lister Attachment. Two patents.—These patents cover important improvements in the construction and arrangement of the subsoiler and cutter employed on lister plows. The cutter is adapted to sever the roots and prevent the subsoiler from becoming clogged, and obviates the necessity of cleaning the same by hand. In the first patent, the subsoiler has an arched front, and is provided with inclined sides or wings. The cutter, which is in the form of a rotary disk, operates in a longitudinal slot or opening, which is located between the sides or wings of the subsoiler. The cutter also enables the subsoiler to run much easier, and effectually prevents roots from collecting on the same.

In the second patent, a substantially triangular subsoiler is employed, and the rotary cutter, which is located wholly above the subsoiler in rear of the front end of the same, is adjustable in the arc of a circle toward and from the point of the subsoiler. The cutter of this patent is also adapted to form a guard to prevent the subsoiler from striking rocks and other obstructions.

Hugh Jones, Edwardsdale, Pa. Car Brake.—The car brake of this patent has means for effectively engaging both the track and the wheels, whereby a train of cars may be quickly brought to a standstill. It is adapted to be operated by any ordinary brake operating mechanism, and it enables a pair of brake levers, each having a track-engaging shoe and a wheel-engaging shoe, to be simultaneously actuated or operated at each side of a truck. Each brake lever is fulcrumed beneath the truck, and is provided above and below the fulcrum point with brake shoes, the upper brake shoe being arranged to engage the wheel and the other the track. The brake levers are simultaneously actuated by means of a cam lever provided with opposite slots, to receive pins or bolts of connecting bars, which extend across the truck to the opposite levers.

Shelton C. Clark, Beatrice, Neb., inventor; J. F. Lewis and A. R. Lewis, same place, assignees. Automatic Stock Watering Machine.—The machine of the present invention is operated by an animal, and automatically draws a quantity of water and delivers the same to the animal. After the animal is through drinking, it automatically empties the trough to prevent water from freezing in the apparatus and rendering the same inoperative in cold weather. The machine employs a supply pipe having a valve, and operating mechanism connected with and adapted to open the valve. An oscillatory frame is movable independently of the valve, and carries the trough to receive the water. Means are provided for locking the valve in its open position until the trough receives its supply, and for then releasing the valve to permit the same to close. A depressible platform when

relieved of the weight of an animal, tilts the trough and empties any water remaining in the same.

James H. Prosser, Mahanoy City, Pa. Two patents.—The first patent is directed to a lighting attachment for the burners of lanterns, lamps, oil stoves, and the like, and it enables a burner to be lighted without removing the chimney of a lamp, the globe of a lantern, or the casing of an oil stove. The lighting device is located wholly within the chimney, globe or casing but is operated exteriorly thereof adjacent to the wick raising device. A supplemental wick tube is mounted on the burner, and extends into the oil fount or reservoir, and means are provided for carrying the outer end of the supplemental wick from a point exteriorly of the burner to a point directly above the same. The supplemental wick is lighted while in the former position, and after lighting the burner, the flame of the supplemental wick is extinguished by swinging it quickly to its initial position.

The second patent covers an educational appliance, and relates to means for teaching objectively, by associating the printed name with the pictorial illustration of the same. The apparatus comprises a frame having a sight space and provided with winding rollers, which receive a belt. The terminal portions of the belt are wrapped around the winding rollers, and portions of the opposite faces of the belt are simultaneously displayed at one side of the frame in the sight space. One of the displayed portions is provided with a column of words, and the other portion has pictorial illustrations corresponding to the words. The pictorial illustrations and the words are simultaneously displayed on the exposed portions of the belt.

Andrew J. Zilker, Albert L. Tidmarsh and Charles J. Armstrong, Austin, Texas. Two patents.—The first patent relates to a drier rack for handling bricks, and the aim of the invention is to provide a drier rack adapted either to form a permanent portion of a brick car or truck, or to be simply placed upon the same to be transferred from the car to suitable supports, or *vice versa*. When the rack is conveyed by a car to a brick machine and deposited upon suitable supports, it is capable of rotary movement, so that when one side is loaded, it may be partially rotated to bring the opposite side in position for loading. The rack comprises a bottom provided with standards and arranged to rotate on a circular track, in combination with a plurality of hinged shelves adapted to be successively brought into position for receiving the bricks. An efficient locking device is provided for holding the shelves in an elevated position out of the way, and the shelves are automatically locked when swung upward.

The second patent is directed to an elevating brick car, adapted to be run beneath the pallet containing bricks, and elevated to raise the pallet from the supports for carrying its contents to the desired point. The car comprises a lower frame provided with wheels, and an upper movable frame guided on the lower frame. The mechanism for raising and lowering the upper frame embodies a shiftable wedge, and movable antifriction devices interposed between the wedge and the frames for enabling the wedge to be readily shifted. Mechanism is provided for enabling the upper frame to be raised and lowered from either end of the car to avoid turning the latter, and also to obviate the necessity of providing turntables and transfer cars for that purpose. The upper frame is arranged close to the ground to enable a large number of bricks to be conveniently loaded on it.



Advertisements inserted in this column for 15 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—Patent Road Grader and Scraper. Easy on man or boy, and team, and can make road fast. Address. S. R. Johnson, Winston, Mo. nov

FOR SALE—Patent No. 762,061, dated June 7, 1904. Washing Machine. A good, reliable, and up-to-date washer. Address, Martin Jensen, L B. No. 16, Barnard, Mo. nov

FOR SALE—The chance of your life to make money. New patent just issued; a useful household necessity. A fast seller, with big profits. Territory for sale. Come quick, Lock Box 172, Evergreen, Ala. nov

FOR SALE—Those wishing to buy a simple and inexpensive device, patented July 11, 1905, No. 794,448, a nut wrench, combining saw driver, and nail and bolt extractor, with wire cutter added. Address, Bulus S. Boggs, Newry, S. C. nov

FOR SALE—The animal poke, known as the Anti-Creeper Button, patent No. 758,213. One of the best means to prevent cattle from creeping through barb and smooth wire fences. Address owner, O. Martinson, No. 1013 W. Douglas Avenue, Wichita, Kansas. nov

FOR SALE—Patent No. 792,931, dated June 20, 1905. Safety Pitchfork Holder. Neat and practicable. The first of its kind for the market. Sells to farmers, liverymen, and all who own pitchforks. A snap for novelty manufacturers. Address, Charles Schade, Cropsey, Illinois. nov

FOR SALE—State rights. Patent No. 764,307. Flower Pot Stand. Illinois reserved. This is a good side line for manufacturer. An article that is in place at any time of the year. For full particulars and cut, address, F. Scabill, Joliet, Illinois. nov

FOR SALE—U. S. Patent Safety Car Coupler, No. 788,982, dated May 2, 1905. Safe to uncouple and set to couple with one lift of lever. Can be made single for coaches and double automatic for freight cars of any capacity. Can uncouple moving or at stand still. Address, Wm. D. Worthington, Mays Lick, Ky. nov

FOR SALE—Patent No. 788,707. Electric Light Tower for city lighting. The greatest invention and money-maker ever offered for sale. Will sell entire right, or on royalty. Make me an offer. Will demonstrate this device and give close figures as to how it retails. Address, S. T. Coverstone, Mt. Pleasant Michigan. nov

FOR SALE—My U. S. and Canadian patent right on an improved commode. Fills a long felt want. Nothing to equal its convenience in sickness, or its usefulness to cripples. For additional information, address, Martin T. White, Chestnut Bluff, Crockett Co., Tenn. nov

FOR SALE—One-half interest in my patent. Combination Salt and Pepper Shaker. A winner. Need capital to push it. Will be used in every house in the country. Write for full particulars, address, E. C. Hurlbert, St Johns, Oregon. nov

FOR SALE or on royalty—Patent No. 785,557, dated March 21, 1905. Porch and house swing. Takes up small floor space and does away with overhead frames. Will be a good seller. Address, William J. Kinback, Dunmore, Pa. oct

FOR SALE—U. S. Patent No. 786,651, and Canadian Patent No. 93,922. Belt Lightener. Should be everywhere where belts with buckles are used. Cheap for cash or on royalty. Address, Lanning & Fusia, Egan, S. D. oct

FOR SALE or trade—U. S. Patent No. 762,490. Apparatus for erecting telegraph and telephone poles and wires. Will sell or trade off in state rights, for well-located real estate, either to manufacturers or private parties. Address, William Parker, Box 665 Tecumseh, Neb. sep

FOR SALE—Patent No. 789,899. Awning. The greatest invention in the way of window shades or awnings. Apply to J. A. Charlton or J. F. Bigony, Hinton, W. Va. sep

FOR SALE or on royalty—U. S. Patent No. 788,417, dated April 25, 1905. Improvement in Furnace, viz. a Furnace Lining. Address, Miller & Marshall Mfg. Co., No. 210 N. Walnut, Centralia, Ill. sep

FOR SALE—Three patents cheap. Compensating Gearing, No. 787,015; Steam Engine No. 725,945; Steam Boiler No. 720,899. For automobile use. Address, E. C. Doolittle, 272 S. Main St. Wallingford, Conn. sep

FOR SALE—Patented May 16, 1905, double hook at both ends, made in different sizes, used anywhere that a snap or hook can be used, right end up any way it is hooked. Address, Lewis Moore, Granite City, Ill. sep

FOR SALE—Patent No. 758,800. Improved Lap Ring or Open Link. Will sell cheap outright, or lease on royalty. Need money. Am looking for capital to patent several inventions. Will assign part on each patent. Address, Frank Wenke, Fort Wingate, New Mexico. sep

FOR SALE—Patent on Nut Lock, most simple, cheap and effective made of steel wire; does not change bolt or nut. Fits any bolt. Sell cheap or on royalty. Write for free samples and particulars. Address, W. B. McCullough, R. D. No 2 Monmouth, Iowa. sep

FOR SALE—Patents No. 774,693. Steering Apparatus for Ships, issued Nov. 8, 1904; and No. 755,928, Heat Regulator, March 29, 1904. Address, John Peterson, Lake George, N. Y. dec 05

FOR SALE—Patent No. 791,958 dated May 30, 1905. Umbrella Rack. To catch drippings and prevent wetting of floor. Simple and neat. Can be manufactured and sold cheaply. Useful in restaurants, theatres, offices, and stores. Address, Andrew Mikulich, No 1010 7th Street, Sacramento, Cal. oct

WANTED.

WANTED—Steam users equip your engines with a Janicke Slide Valve. Address, Gus. A. Janicke, R.R. No. 2 Louisville, Ky. nov

WANTED—To buy ideas or patents for new articles to manufacture as a side line. Will consider all propositions, but prefer articles commonly used by the populace. Briefly give full particulars. F. Rainville Company, Grand Rapids, Michigan oct

WANTED—Patented and unpatented inventions bought, sold and improved. Address, Frank Pavlik, Jr. Winnetka, Ill. sep

INVENTORS OF SHEET METAL, WIRE AND PLASTIC MATERIAL GOODS.

The Wiet-Goethe Company of Sacramento, California, owns the best tool room and plant on the Pacific Coast, for the manufacture of goods made from sheet metal, wire and plastic materials. It makes a specialty of the manufacture of patented articles only, and will be pleased to receive from inventors, particulars of articles of this character. The plant is fully equipped in every particular, and offers to the inventors an unusually good proposition. This will largely apply to men of small capital, who in this way, can command the services of a plant, which could not be duplicated for thousands of dollars. Address, Wiet-Goethe Company, Sacramento, California.

Drawings for Inventors.

If you want copies of the drawings of your patent, we can procure them at these prices:

12 copies, each sheet full size (8x13)	\$ 2.50
25 " " " " " "	3.50
50 " " " " " "	4.50
100 " " " " " "	7.00
500 " " " " " "	13.00
1000 " " " " " "	17.00

12 copies, each sheet reduced 7/8 (8 1/2 x 5 1/2)	\$1.25
25 " " " " " "	2.00
50 " " " " " "	3.00
100 " " " " " "	4.00
500 " " " " " "	7.50
1000 " " " " " "	9.00

These copies will be made by the photo-lithographic process, by the firm which formerly attended to the Patent Office work, and will be equally as good as the drawings accompanying your letters patent. Five hundred copies of your patent would cost you at least \$25. We can furnish 500 copies of the drawings, if contained on one sheet, for \$13 full size, or \$7.50, if reduced one-third, the same reduction as your letters patent drawings. Your valued orders solicited.

The Inventive Age Publishing Company,
WASHINGTON, D. C.

YOUR NAME, BUSINESS and ADDRESS on a neat Rubber Stamp with pad and ink mailed for 20c. I. A. Durham Co., Corry, Pa.

Magic Rheumatic Cure!

It absolutely does cure. It is not a cheap remedy but it is a **cheap** cure. Mark the distinction! There are a thousand remedies to one cure. This is a **CURE**. It costs \$2.00 a bottle, and is worth \$20.00 to any sufferer. Sold only by our authorized agents or direct of us. Send for circular. Agents wanted.

MAGIC CURE CO.

R. 313-315 Dearborn St.

Chicago.

A NEW BOOK FOR INVENTORS.

Patents and How to Make

Money out of Them.

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trademarks and copyrights. It also tells accurately How and What to Invent How to sell Inventions, Place them on the Market, Interest Capital in them, and to successfully Promote a Stock Company. It also contains an index of forms worth double the price of the book, to any one interested.

ELEGANTLY CLOTH BOUND.

GOLD STAMPED. \$1.00 Postpaid.

Sent with one subscription to AGE for \$1.75.

Or will sell separately.

Address—The Inventive Age Pub. Co.,

918 F St., N. W. WASHINGTON, D. C.

Bee-Keepers

Should all subscribe to

THE AMERICAN BEE-KEEPER,

(Established 14 years.)

50 cents per year.)

The best magazine for beginners. We

will send it **Six Months on Trial** for

20 cents. Sample copy free.

Address:

The American Bee-Keeper, Falconer, N.Y.

It is published by the

W. T. FALCONER, MFG. CO.

One of the oldest and largest makers of bee-keepers' supplies. Catalogue free.

FREE! Send us 2 cents to pay for postage and we will mail you a valuable copyrighted book, "How to obtain Patent, Caveat, Trade-Mark and Copyright Protection, with Decisions in Leading Patent Cases" entirely free of charge. Address: **INVENTIVE AGE PUBLISHING COMPANY,** (Dept. P.) **WASHINGTON, D. C.**

Attention Inventors!

LISTS OF MANUFACTURERS FURNISHED.

We have increased our facilities for furnishing lists of manufacturers, and now cover every line of industry.

Our charge for each list is one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad will be inserted three times.

THE INVENTIVE AGE PUBLISHING Co., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.....

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.



The Inventive Age

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 918 F Street, N. W.,
WASHINGTON, D. C.

The INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND A HALF.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

The INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 15 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,
WASHINGTON, D. C.

Entered at the Post-office as 2nd class matter.

WASHINGTON, SEPTEMBER, 1905.

Patent Attorneys' Protest.

In another portion of the AGE we print in full a copy of the paper filed with the Secretary of the Interior containing a protest against closing the docket of appealed cases of the Commissioner and Assistant Commissioner during the months of July and August, so that no cases can be heard during these months. We understand that as a result of the action taken, the Commissioner has withdrawn the order and it will never again be enforced.

For a period of approximately five years the order has been in force, and during that time no cases appealed from the lower tribunals of the Patent Office could be heard or considered, no matter how urgent or important they were. It has been a source of considerable quiet complaint: but up to the present time, no attempt has been made to correct what was regarded as an objectionable condition. It is conceded that the law fully empowers the Assistant Commissioner of Patents to hear and decide cases, many of which are of a judicial nature: and no one questions the ability of the present incumbent of the Assistant Commissionership to creditably fill his office. The termination of the controversy by the withdrawal of the order makes it unnecessary for the Interior Department to take any action, and ends in a very happy manner what promised to be a disagreeable situation.

A Novel Proposition.

A writer in *The Operative Miller* suggests a novel plan for ending patent litigation, taking his idea from the proceeding frequently adopted of the presumptive owner of a piece of real estate filing a bill in equity for the purpose of quieting or settling the title to the property, and ending the uncertainty of its ownership. He suggests that the owner of a patent be permitted, under proper regulations, to file a bill to quiet his title, either in one of the federal courts already organized, or in a special tribunal created expressly for this purpose.

By this means the patentee would then be enabled to feel that security which would give double value to his property, and would be freed from that continued series of vexatious law suits which often render the most valued inventions a source of continual annoyance, if not of eventual pecuniary ruin to their authors. The suggestion appears to us to be a good one and worthy of legal enactment. Present conditions are almost intolerable. In some European countries, the infringement of a patent is made a criminal offence: and as a result patents are not commonly infringed, as is the case in the United States. If one infringement suit could determine the validity of the patent for all time, all would be well. But it sometimes takes several suits before a patent is regarded as having attained a definite status. If, however, the patentee could, as soon as the infringement commenced, file a bill in equity, making the infringers parties to the suit, and praying the court to pass on the validity of the patent, it would go far towards simplifying patent litigation. Of course this would necessitate an amendment of the patent laws: but this fact should not deter an effort looking to a correction of the admitted evils.

"Patents Promptly Procured."

This misleading heading is found in the advertisements of certain solicitors of patents whose work is distinguished more by the number of patents obtained than by the value thereof. Such an advertisement, if it means anything, assures the inventor that if his business is intrusted to them, that the patent can be granted more "promptly" than if other counsel is selected. In point of fact, patents cannot be "promptly" procured without, in many instances, sacrificing the interests of the inventor. But what matters it to some attorneys who look upon inventors as affording opportunities for exploitation, and who, having lost their reputations, are simply concerned in obtaining business by offering such false promises as "Patents Promptly Procured."

Anyone familiar with conditions as they exist in the Patent Office today, knows that it is impossible to procure patents promptly for the reason that the Patent Office is behind in its work: and, moreover, the careful, conscientious prosecution of an application demands that time should be consumed in contending for proper claims. Inventors should not be misled by such advertisements, for as a rule such attorneys are the least competent to look after the supreme interests of their clients. They think that by promising an inventor his patent promptly, the unwary one will be caught. Inventors who have gone through the school of experience are no longer attracted by such head lines. It is the inventor who has yet to obtain his first patent, who is caught, and who fills the overflowing pockets of these attorneys.

We have often thought there ought to be a closer relation between the Patent Office and the attorneys who practice before that Office. The requirement of registration has not materially

remedied the situation. What should be done is for the Patent Office to exercise a form of supervision over the advertisements, and circular matter of attorneys who practice before that Office, power being given to the Commissioner of Patents to regulate, under penalty of disbarment, the character of the advertisements and other literature sent out by attorneys in soliciting business. While the Commissioner of Patents has power to disbar attorneys for "gross misconduct," it seems to us that the minor, though none the less important, phases of the practices of attorneys, should come within his official grasp.

The Value of Patents.

"What is the value of my patent?" is a question that invariably presents itself to every patentee. The desire is widespread on the part of every inventor to know the market value of his patent. As a general rule the value of a patent is affected very materially by the scope of the claims accompanying the same. Yet it is a fact that sometimes the strongest patents have turned out to be worthless, either because the invention is valueless or anticipates the times. From our observation we believe that inventors have a most exaggerated idea of the value of their inventions. Many an inventor has taken out a patent on a contrivance which took him only a few hours to originate, and who, after the Patent Office had awarded a patent thereon, felt he would not be amply rewarded unless he received \$10,000 for his invention. Inventors have told us that they had opportunities to sell their patents, but because the price offered did not seem to be sufficiently great, they refused the one golden chance to sell.

A short while ago a case came under our observation in which this was illustrated. A certain man had obtained a patent on an invention which was absolutely impracticable: but, fortunately for the patentee, his patent contained a few good claims which were of value to some one else.

On being approached about selling the patent, the would-be purchaser met with scant encouragement. The patentee wanted a certain figure (\$5,000) which was regarded as prohibitive by the purchaser, who was willing to give half that amount. Negotiations were broken off. The patentee still has government protection, and the chances are he will leave the blue ribbon and red seal to posterity without ever having placed his invention on the market.

Inventions, as a rule, are conceived and worked out in a relatively short time. We have often read of inventors spending a lifetime on an invention, but these are the class who exist only on paper. It has always seemed queer to us that an invention which only required a few moments to conceive, a few hours to complete, and little expenditure of money to put into tangible form, should suddenly assume a fictitious value as soon as the Patent Office awarded a patent thereon. Some of the reasons why inventors fail to achieve success is traceable to this cause. Opportunities are allowed to

slip by which never again present themselves: offers are refused, which are never repeated, until the inventor finds that the market value of his invention has depreciated to such an extent that he cannot sell it at any price.

One reason why inventors acquire an exaggerated idea of the value of patents is due to the character of circular matter sent out by men and concerns engaged in that questionable business "Selling Patents." Just why the sale of patents should not be conducted as legitimately as any other business, is hard to understand. When a patent is granted to an inventor, he is immediately deluged with offers fixing the value of his invention anywhere from \$10,000 to \$100,000.

Some of the circular letters are so alluring that it takes an expert to detect their fraudulent character. It is little wonder that for a short time after the issuance of his patent, the inventor builds air castles, and dreams dreams. And it is a fact, well known to patent attorneys, that it is never safe to approach a client about buying his patent until he has recovered from the first flush of victory.

Patents are not like other classes of property. There is no standard by which to gauge the value of patents. First of all comes the question, what demand is there for the invention; how is the present want filled: in what way will the invention improve existing conditions: for how much can it be manufactured: will it sell readily; how cheaply can it be sold with margin of profit: finally, does the patent protect the invention? Even with all these questions answered satisfactorily, there is still no way of determining how much the patent is worth, as values are always relative. One might reach some conclusion by estimating that the patentee should receive a certain per cent of the profits for the full term of 17 years. At first glance this may appear to be a fairly satisfactory solution, but it is not many inventions which run the full period of 17 years: and both the patentee and the purchaser must take into account the possibility of some other invention entering the field and supplanting the old one.

There is a final word on this subject we would say to inventors: think long and seriously before refusing a bona-fide offer for an invention.

Promptly Filing Applications.

Our attention has been directed to the practice of a certain western attorney in filing in the Patent Office informal applications by simply sending to the Commissioner of Patents the specification and drawings without the government fee: and later, within a year thereafter, paying the fee so as to complete the application. Such a practice cannot be too strongly condemned, for in many instances, such delays in completing the applications might result in the loss of the patents.

We have no doubt but that the said attorney advises his clients that their applications are pending, and blames the Patent Office for the delay in procuring the patents. We advise inventors that whenever there has been any great delay in obtaining their patents,

that they require their attorneys to produce evidence in the shape of official letters, showing that not only have their applications been filed, but official action has been taken thereon. When it is remembered that very frequently the delay of a few hours may put an inventor at a disadvantage in an interference proceeding, the impropriety of delay in the filing of an application is made manifest.

According to the present practice of the Patent Office, the filing of a completed application is accepted as evidence of reduction to practice. That is to say, in an interference proceeding between two applicants for a patent, the man who first files an application, has a distinct advantage over the other. It is no longer wise to delay the filing of an application for patent until the invention has been tested and found to be operative. We have always felt that the tendency on the part of the Patent Office in giving such weight to applications for patents, had the effect to cause inventors to rush into the Patent Office with inventions embodying imperfect conceptions. It seemed to be placing a premium on hastily-contrived inventions, rather than affixing the seal of commendation to the perfection of meritorious devices. However, we are dealing now with actual conditions which impel us to urge inventors to get their applications on file at the earliest possible date. Otherwise, their opportunities for protection may be lost by delay.

A New Grindstone.

George Stolzenberg, of Berlin, Germany, has patented in the country an improvement in grindstones, which relates more particularly to means for effecting an automatic supply of water to the grinding-surface from the axis thereof through the body of the stone. In the embodiment of the invention, the grindstone is secured on a revoluble shaft, which shaft is provided with an internal chamber tapering from the eye of the stone outwardly, and provided with radial ports leading from the chamber directly to the eye. Means are provided to prevent the escape of liquid from opposite ends of the eye of the stone, and a feed-pipe is employed which is stationary relatively to the shaft and fitted fluid-tight in the smaller end of the shaft chamber, whereby when the shaft is rotated, a partial vacuum is formed in the chamber and water drawn in by suction and driven through the body of the stone to its periphery by centrifugal action.

Coloring Wood.

The colored-wood industry began in Italy in the seventeenth century, and wood-coloring works came to Sweden during the Thirty Years' War; but until quite recently the method was used on a very small scale, and at first only dry wood was colored. Now, by the method invented by an Austrian, Joseph Phister, in 1901, the wood is colored when fresh. The tree is cut while the sap is in action, and in the coloring process, the dye is forced under heavy pressure into the wood and replaces the sap. Until recently thenonpoisonous colors and "aniline" have been used, but those colors fade

slightly. Now the manufacturers can color to a length of 13 feet. Birch, beech, alder, maple, elm, and bass-wood are the best kinds of wood for the purpose. Oak is not good on account of the tannic acid, and in spruce and pine the color can not be made uniform. The wood looks best when polished, and when it is given a gay color. The prices are yet comparatively high on account of the amount of waste, but improvements may follow. It can be used in furniture, panels, and doors; also in outside work in order to avoid painting. It is especially good for fitting ships and tram cars, and also for elegant and modest furniture.

Destroying Insects by Electricity.

The Electrical Magazine describes a series of experiments for destroying insects injurious to the products of the soil, which experiments are said to have been successful. An engineer at Monaco was the first one to have his attention called to it while he worked with an electric machine in the open air. He observed that metal rods, which were put into the ground and were then connected with a dynamo of 110 volts, made insects in the vicinity leave their hiding places in the ground. He argued that electricity might therefore be used on a large scale to kill these insects, which all came in great haste to the surface. It is probable that for the killing of various kinds a different voltage should be used. Further experiments must be made to this end.

An apparatus is mentioned, invented by a Russian, for killing injurious insects by electricity. A dynamo is so placed upon a hand car that no electricity is engendered while the car is standing still.

When in motion the current passes into the ground through the iron wheels of the car upon one side, and upon the other through the points of brushes of copper wire, which are fastened in the rear of the car so as to be a few inches above the ground.

The result is said to be that all insects in the vicinity of the copper brushes are killed as if by lightning.

Compound Tubing.

John N. Nicholson, of Pittsburg, Pa., has assigned to the National Tube Co., of Pittsburg, Pa., the entire interest in a patent recently granted to him on the manufacture of compound tubing.

The invention relates particularly to the welding of a nickel covering, either external or internal, or both, to a steel or iron tube in order to give a non-corrosive surface, and is designed to provide a process whereby the surfaces may be thoroughly welded, so that when the tube is bent, expanded, or otherwise changed in form, there will be no separation between the layers. The method consists in nesting together a heavy-walled hollow steel blank, and a thin-walled tube of nickel or nickel alloy, closing at the end the intermediate space between the tubes to exclude oxidizing gases, heating the compound blank, and compressing and welding it over an internal support and between rolls.

A New Explosive.

The latest use for acetylene gas is as an explosive. By means of an air mixture, explosive force is obtained which can compete with that of powder and dynamite. The explosion takes place in an air chamber and is caused by an electric spark. Carbide of calcium, reduced to small particles, is put into a cartridge, consisting of a tin box. The carbide lies at the bottom, and above it is a partition filled with water. Above this, still, is a vacant space with the electric percussion device. On the side of the cartridge is an iron pin, by means of which the partition between the carbide and the water can be perforated. After the drill hole has been completed, the cartridge is placed into it, and the hole is closed with a wooden stopper. Then the protruding iron pin is dealt a blow, by which the partition is perforated and the water is caused to come in contact with the carbide, whereby acetylene gas is generated. This mixes with the air of the drill hole. After five minutes, the gas is ignited by an electric spark.

By this method of blasting, the rock is said to be not thrown out, but rent with innumerable cracks, so that it can be easily removed afterwards. Nearly two ounces of carbide are used for each cartridge.

Dynamite is always used as a standard of comparison for explosives, and it is a curious anomaly that the inventor of this dangerous substance, who made a great fortune from his discovery, left the whole of it for the benefit of those who follow the arts of peace.

The recent distribution of a quarter of a million dollars in prizes according to the Nobel bequest has again attracted attention to the terms of this legacy to genius. When Alfred Nobel died seven years ago, he left between \$8,000,000 and \$9,000,000 for the establishment of five annual prizes, each to be bestowed upon the person who had, during the year, done the most important work in physics, chemistry, physiology or medicine, literature, and the promotion of peace. The net yearly income from the capital is about \$225,000, and it will be seen that each of the five persons honored by the award receives something more substantial than glory. A Frenchman and a Spaniard—Frederic Mistral, a poet of Provence, and Jose Echegaray, a dramatist—divided between them, this year, the prize for literature. An Englishman who is a prominent worker in the cause of international arbitration received the prize for the promotion of peace. Sir William Ramsay, the discoverer of many new elements, including helium and argon, received the prize in chemistry, and Lord Rayleigh, who has made many valuable experiments with electrical standards and in optics and acoustics, the prize in physics. Last year, this was given to the discoverers of radium. The medical prize was won by the late Dr. Finsen, of Copenhagen, who has accomplished such remarkable results in healing skin and other diseases by means of the electric light.

Nobel came of a family of inventors. When he was only four years old, his father was obliged to leave Stockholm, where Alfred was born, because his neighbors objected to having their windows smashed and their lives imperilled by explosions from the Nobel experiment works. When the boy became of an age to assist his father, these experiments were turned toward nitroglycerin; and although a younger brother was killed, and the father paralyzed in an explosion in their laboratory, Alfred went on with his work with the zeal of the true enthusi-

ast. The discovery of dynamite was made by accident. It was in Hamburg, where he had set up a small factory, that some nitroglycerin trickled upon the damp earth from one of his casks and became spoiled. When the moisture had evaporated, Alfred found that one part of this earth mixed with three parts of nitroglycerin not only increased its explosive power, but rendered it comparatively safe for handling.

Dynamite, it may not be generally known, is not quite the dangerous substance most people suppose it to be. It can be handled with impunity and even recklessly, if one knows just how this should be done. On the authority of an expert in these matters, dynamite is more of a detonator than an explosive; a difference in degree only, but with a wide difference in effect. An explosion is caused by the generating or liberating of gases from a solid, liquid or other gaseous substances so quickly that the gases formed cannot be confined in the space of the original substance,—a more or less slow process—whereas detonators liberate their gases almost instantaneously. The greater bulk must find an outlet at once, and does not have time to seek the place of least resistance, but must find space immediately. A detonation is, in round numbers, 1,000 times quicker than an explosion. A strong concussion and a spark in combination will cause it.

Dynamite, in its marketable form, in order to fit into drill holes, is generally in the shape of sticks, varying from half an inch to three inches in diameter, and in length from two and a half to 12 inches. These sticks are formed by packing dynamite into oiled paper cases of the required size. Only under certain conditions will dynamite act to the purpose for which it is made, so under ordinary circumstances it may be viewed as safe to handle and cart about, probably with as little precaution as would be taken with coal oil or naphtha.

In the early days of its manufacture, before its properties were well understood and before perfection of combinations in its manufacture had been reached, there were some unaccountable explosions and queer actions which gave dynamite a bad name, and this has clung to it ever since. Knowledge regarding it has not grown to be general, however, with the passing of years. Now and then one hears of children finding pieces of dynamite sticks and playing with them until some one rescues the children from supposed great danger, which probably did not exist in reality, as the children would have had difficulty in causing an explosion. Careless workmen, accustomed to handling it and knowing all about its properties, throw away pieces sometimes, and these, of course, while not absolutely dangerous to handle, may just as well be let alone. It is one of the many things that mothers would not select as toys for their children.

Now and then a mysterious explosion is attributed to dynamite, but experts know, when they read explanations of the affair, that the conditions were not right for dynamite, and that undoubtedly it was not present at all, and was not the agency causing the explosion. Usually it is some less powerful agent that is used. Again, some prominent man receives a mysterious box by express or otherwise that is thought to be an infernal machine. The police is notified, and take the machine and usually soak it well in water before opening it. But if it is dynamite, as it is usually reported to be, it will detonate just as readily, even though it may have been soaked in water for days. It is therefore probable that these machines do not contain dynamite at all. Water will destroy matches, gunpowder and other substances, but not dynamite, which, in order to be made harmless, must be soaked in some substance which will dissolve its ingredients.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy; twenty copies \$1.50.—Please give correct data in ordering.—Address,

THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

Issued August 1, 1905.

MECHANICAL PATENTS.

Continued from August Number.

Toothpick machine..... H. E. Barlow
Toy snap back ball..... J. B. Cook
Transmitter attachment..... S. A. Beyland
Tray supporter..... E. E. Robertson
Tray, waiter's..... I. A. Merriman
Trestle, extensible..... W. C. Kremkau
Trolley brake and take up mechanism. Combined..... H. B. Clarke
Trolley retrieving device..... H. B. Clarke
Trolley wheel bushing..... F. M. Carroll
Turbine, internal combustion..... P. Billingham
Turbine, steam..... A. Kunz
Twine holder..... L. M. Corbin
Type, apparatus for equably justifying composed lines of..... H. J. S. Gilbert-Stringer
Type writing machine..... O. C. Kave
Type writing machine..... G. A. Seib
Type writing machine..... P. Thommen
Type writing machine tabulating mechanism..... G. W. Singleton
Umbrella handle, detachable..... J. B. Rosenstein
Underreamer..... E. Double
Valve..... O. H. Mueller
Valve..... A. L. Canfield
Valve operating device, automatic..... H. C. Klein
Valve, pressure controlled..... E. F. Osborne
Valve regulating device, filling..... C. A. Carlson
Valve, self closing..... A. O'Brien
Valve, steam engine slide..... L. J. W. H. Giffhorn
Vapor generating device..... J. H. Tuttle
Vegetable sacking device..... N. Lofstam
Vehicle body..... W. E. Stewart
Vehicle driving gear, motor..... H. T. Hansen
Vehicle, motor..... F. Karneli
Vehicle spring..... J. A. Jackson et al
Vehicle spring..... N. T. Harrington
Vehicles or vessels, power transmission in self propelled..... C. S. Schultz
Vending apparatus, coin operated..... J. W. Patterson
Vending machine, coin actuated..... E. Buck
Vending machine stand..... J. E. Packard
Vessel, metallic..... C. M. Perkins
Voting machine..... W. H. Daily
Wagon brake..... W. H. Harris
Wagon, dumping..... R. Philpot
Wagon for transporting heavy materials..... R. K. Dent et al
Washing machine..... A. E. Hoover
Watch stem winding mechanism..... R. L. Taft
Water, purifying..... H. Reisert
Water supply system..... X. Caveno
Watering system and nozzle for greenhouses..... L. Wittbold
Water tight butt joint..... F. C. Kelsey
Wheat, flour or other cereals, apparatus for improving, bleaching or conditioning..... W. T. Mercier
Wheat, flour or other cereals, improving, bleaching or conditioning..... W. T. Mercier
Whiffletree hook..... W. R. Bueske
Whiffletree hook..... J. Gansley
Winding apparatus..... 2 pats. C. W. Hubbard
Wire drawing machine..... A. Smith
Wire fabric..... J. F. McClatchey
Wire splicing machine..... J. Heyde
Wiring, pipe cap for outdoor..... W. H. Vibber
Wrench..... O. G. Guss
Wrench..... E. Enderes
Wrench..... J. H. Shepherd
Wrench..... R. F. Thomson et al

Issued August 8, 1905.

MECHANICAL PATENTS.

Adding machine ribbon feeding mechanism..... C. Wales
Adjustable pipe..... I. G. Bergenstrol
Advertising device..... R. O. Sheel
Aerator and cooler, liquid..... W. E. Bailey
Amusement wheels, swinging seat for use in..... W. E. Sullivan
Apron belt..... B. M. Blake
Automobile air pump..... S. N. Rapp
Automobile battery holder..... F. Jackson
Bag..... T. Manahan
Baling press..... F. Phelps
Barbers' chairs, attachment to the head rests of..... W. Lupton
Base making machine..... A. Swan
Bath robe, electric..... E. B. Rayner
Bearing..... C. M. Feist
Bearing, ball..... C. A. Hirth
Bearing, ball..... E. Sachs
Bearing cage, ball..... C. A. Hirth
Bearing wheel, roller..... J. N. Sanchez
Bed attachment..... C. M. Brennan
Bed coach..... J. J. Braznell
Bed, metal..... F. N. Palmer
Beds and mattresses, cover for box spring..... C. A. Hermann
Bedstead, invalid..... J. C. Anderson
Bevel, rafter and polygon..... F. Quisenberry
Binder frame..... 2 pats. W. J. Watters
Binder, temporary..... E. C. Phillips et al
Book assembling machine..... J. D. Horton et al
Boom sheet buffer..... C. A. Marr
Boring tool operating attachment..... R. R. Hill
Bottle, non refillable..... R. Bernstein
Bottle stopper..... G. Kirkegaard
Brake beam..... H. W. Frost
Brake shoe..... W. P. Taylor

Brick and the resulting product, treating siloxicon to produce therefrom refractory articles, such as..... B. Seaboldt
Brick press..... F. Schwerdtfeger
Brush..... A. H. Wolcott
Brush cleaner..... I. Gruner
Buffing wheels, device for feeding cleaning or polishing material to..... J. H. Gray
Building construction..... J. Babiczky
Burial apparatus..... S. W. Hoag
Butter, &c. Machine for stamping, forming and delivering blocks or pats of J. C. Lawson
Butter, making..... S. Boykin
Button fastener..... G. A. Holmes
Cabinet, filling..... E. McLane et al
Can heading machine, 2 pats..... J. McGinnis
Candy spinning machine..... R. E. Pollock
Cane, detonating..... G. H. Fisher
Canopy..... C. Eichenberg
Car alarm bell, street..... N. A. Butler
Car brake..... C. J. Specht et al
Car brake..... W. Quinn
Car braking system..... J. A. Field
Car coupling..... A. Cairns
Car door lock..... H. F. Pope
Car door, metal..... J. M. Hopkins
Car fender..... E. C. Hall
Car lighting, electric..... J. F. McElroy
Car replacer..... J. W. Hood
Car sign turning device, electric J. M. Smith
Carburetor..... C. M. Bockoven
Carburetor..... P. C. Hewitt
Carburetor for hydrocarbon engines..... D. Fergusson et al
Carbureters, oil feed for..... B. A. Guy
Card, tag and the like holder..... W. E. Ellis
Carding machine silver condenser..... J. Florence
Carpenter's gage for setting hinges..... N. A. Carping
Carpet beater..... M. P. Hayward
Carpet raveling machine..... F. H. Wilms
Cartridge..... W. Cohen
Cash carrier apparatus..... J. H. D. Chamberlain et al
Centering frame..... P. R. Burton
Centrifugal machine..... W. S. McKinney
Chain making machine..... E. Lelong
Charging apparatus..... T. F. & J. G. Witherbee
Charging apparatus..... J. G. & T. F. Witherbee
Check holder, registering..... G. M. Bradt
Cheese making machine..... C. H. Southard
Churn..... C. S. Waybright
Churn..... J. S. Leake
Chute..... J. Koller
Cigar box branding machine..... C. Stutz
Circuit closer, extension..... J. R. Hershey
Circuit controller..... H. B. Wilson
Circuit controller, thermostatic H. A. Fiske
Circuit controller, time limit E. M. Hewlett
Clamp..... J. Herr
Clock, electric..... R. Carlsstedt
Cloth rubbing and glazing machine..... H. Simonin
Clothes line fastener..... S. A. Hall
Clutch, friction..... C. O. Wood
Coat and hat hanger, folding pocket..... J. H. Clark
Coil, Ruhmkorff..... J. McIntyre
Collar, detachable overcoat..... I. M. Savitt
Collar shield, horse..... C. A. Rejling
Combination lock..... J. Graf
Combustion motor..... A. Houkowsky
Commode, chair..... J. Burke
Composite board..... H. F. Watson
Concentrating table..... T. F. Sheridan
Concrete foundations for gas tanks or other concrete walls, centering for..... R. Deever
Concrete mixer..... W. B. Martin
Convertible chair..... E. L. Thompson
Conveyer..... E. A. Thomas
Conveyer, cargo..... C. H. Anderson
Core bar..... G. H. Adam
Core making machine..... C. D. Schroeder
Corn husking apparatus, green..... G. Weiss
Corset, apparel..... D. Kops
Cotton gin..... 2 pats. F. Phelps
Cotton picking machine..... 2 pats. P. P. Haring
Coupling..... J. Johnston
Crane..... G. M. Hoffmann et al
Crate..... H. H. Cummer
Crate or box, folding..... S. J. Brown
Crate structure..... E. F. Hulbert
Creasing and indenting device..... H. G. Razall
Cross tie and rail fastening, metal..... C. D. Paxson
Cultivator attachment..... F. W. Stafford et al
Current distributing apparatus, alternating..... A. F. Berry
Current motor..... F. M. Cummings
Curtain pole..... G. W. Grace
Cushions and similar articles, border for..... A. C. Buschner
Cuspidor..... H. Crapper
Decorticating machine..... G. H. Roeder
Derrick..... O. F. Steinman
Distance meter, echo..... J. Sutherland
Doll head..... C. Halbig
Door and window screen..... O. B. Jacobs
Door closer..... G. N. Hall
Door securing means..... L. A. Leon
Double action press..... J. J. Rigby
Double clasp..... F. O. Brockhaus
Drawing board..... W. L. E. Kenfel
Drying cylinders, means for discharging fluids from..... R. D. Tackaberry
Dusting machine..... J. Baur
Dye and making same, red violet sulfur..... T. Muehall
Dye making a yellow sulfur..... J. Hoerlin
Dyeing apparatus..... J. Marshall
Dyeing violet to black..... V. Fungsganger
Egg candling apparatus..... E. H. Dunn
Egg candling scoop..... E. H. Dunn
Electric current governor..... H. K. Sandell
Electric heater..... E. Thomson
Electric light fixture..... R. W. Morgan
Electric motor feed regulating device..... S. W. Williams
Electric motor, rheostat, and belt-tightener, combined..... H. S. Graber
Electromechanical regulator..... J. L. Rontin

Electroplating device..... H. Schuessler
Engine roll beating..... L. P. Dillon
Engine speed regulator, explosive..... E. W. Parsons et al
Engines, incandescent ignitor for explosive..... A. Wassmann et al
Evaporator..... A. P. Geer
Excavating machine..... W. Marshall
Explosion engine..... E. H. Atkins
Explosion engine..... E. Solter et al
Explosion engine..... H. O. Westendurp
Fare receipt form, cash..... H. P. Musseu
Fastener..... G. A. Holmes
Fastener, separable..... H. R. Baker
Faucet..... E. A. Rider
Faucet, hot and cold water..... W. S. Graham
Fence post and fencing holder, concrete..... J. B. Witty
Fender..... N. O. Sharp
File, loose leaf..... T. Niverville
Filling material, producing..... C. Sundstrom
Filter..... G. M. Knepper
Filter..... H. Beyer
Fire curtain, theater..... L. Potthoff
Fire door draft check..... E. B. Kirby
Fire door operating device, automatic..... W. P. Reed
Fire extinguisher, chemical..... J. B. Thomas
Firearms, automatic counter for..... C. J. Sykes
Fish dressing machine..... E. A. Smith
Fishing net..... A. S. Cornet
Fishing rod..... J. B. Tuttle
Fixture support and canopy, combined..... W. H. Nichols
Floor construction support..... L. Viezzi
Floor, elastic..... C. R. Hunt
Flower making device, artificial..... J. Lieval
Flowers, packing, shipping, and display frame for cut..... J. M. Clark
Fluid pressure mechanism..... C. C. Farmer
Fluid pressure regulator..... W. T. Croslen
Fluid volume and pressure register..... T. B. Wylie
Flushing apparatus..... W. Scott
Fly trap..... O. B. Jacobs
Folding box..... J. B. Le Cuyer, Jr
Foot covering cleaner..... C. C. Childers
Frame fastening..... R. G. Fraser
Fuel burning apparatus..... C. J. Coleman
Fume arrester..... S. I. Clawson
Furnace..... E. O. C. Ord
Furnace and soaking pit cover..... A. C. Ryan et al
Furnaces of high temperature, continuous heater for..... L. Houze et al
Furniture and the like, priming articles of..... G. Tuschel
Gage board..... F. W. Wolf
Game apparatus..... A. G. Thompson
Garbage cremator..... W. D. Walters
Gardening, artificial shading for..... H. D. Shimer
Garment hook..... G. Stricker
Garment supporter..... M. E. Duckworth
Garment supporter..... H. H. Wilson
Gas check..... A. A. Ury
Gas generating plant..... T. F. Fitzsimmons
Gas, making..... D. McDonald
Gas producing apparatus..... J. Lubne
Gazogene..... A. Bruce
Gearing lubricating device, compensating..... W. H. & H. T. Coldwell
Gearing, variable speed..... F. L. Dyer
Glass articles, apparatus for making..... J. J. Power
Glass blowing machines, blow and plunger head for..... W. D. Fredrick
Glass melting furnace..... H. Hilde
Glass tank..... W. E. Bock
Glasses, base for..... H. Smith
Golf club..... F. J. Brown
Golf recording instrument..... C. Bullock
Governor, gas engine..... 2 pats. T. B. Jeffery
Governor, steam boiler furnace automatic..... C. B. Kirby
Grain shocking machine..... E. A. Maingnet
Grain sorter..... H. E. Marot
Grain storage tank..... A. G. Mather et al
Grinding roll..... G. B. Nutt
Grindstone..... G. Stolzenberg
Gun firing mechanism, breech loading..... R. P. Stout
Gun, trap..... C. D. Lovelace
Harp..... F. C. Young
Harrow, drill..... E. Marsalis
Harrow tooth fastener..... G. E. Blaine
Harvester and binder knotter, grain..... I. E. McElroy
Harvester tongue truck, grain..... T. Rooney
Hat and coat rack..... J. B. Rogers
Hat pin..... I. E. Weil
Hats, manufacture of..... F. J. Muhlfeld
Headlight, locomotive..... M. A. Ross
Heater..... H. S. Stewart et al
Heating device..... E. C. Stem
Heating system, hot water..... J. H. Thissen et al
Hoe, vineyard..... H. Matthesen
Hogs, &c. Device for catching and holding..... D. P. Funk
Hoist or elevator..... C. A. Juhl
Hoisting machine..... W. A. Tompkins
Hoisting mechanism safety device..... W. Cooper
Horseshoe calk..... I. A. Bleam
Horseshoe calk..... J. Durkee, Jr
Horseshoe calk..... A. S. Hovander
Horseshoe calks, die for forming..... E. F. Atherton
Hose binder..... J. J. McIntyre et al
Hose holder..... A. G. Burton
Hot air furnace..... H. Bowers
Hot air furnace..... F. Klein
Hydraulic press..... O. Philipp
Hydrocarbon burner..... G. T. Phelps
Insulator pin..... F. M. Locke
Irrigating apparatus..... J. H. Martin
Jar closure..... F. O. Fischer
Jar cover and fastener, fruit..... J. P. Young
Joint hanger..... J. Kahn

Journal box..... F. Gottfried
Journal box, self oiling..... F. B. Philbrick
Kilns and furnaces, fuel feeding device for straw burning..... C. Zimmerman
Knitting machine..... W. W. Burson
Ladder..... W. L. Ketchum
Lamp, electric arc..... B. A. Stowe
Lamp, electric incandescent..... W. J. Phelps
Lamp guard..... T. A. Edison
Lamp, miner's..... W. J. Rump
Land rolling device..... W. H. & H. T. Coldwell
Latch lifting member..... W. H. Hart
Lathes, &c. Micrometer gage attachment for..... W. A. Farrar
Leach pitcher..... J. C. Dunn
Leather stretching clamp..... C. B. Rathbun
Level, spirit..... R. H. Ketchum
Ligature container..... P. S. Bauer
Lightning conductor..... F. E. Price et al
Lightning protector for buildings..... J. P. A. Anderson
Linotype machine..... O. Southwell
Linotype machine..... B. Van Wie
Linotype machine..... F. A. Vinton
Linotype machine..... P. G. Wolff
Linotype machine..... D. S. Kennedy
Linotype machine..... L. L. Kennedy
Linotype machine..... C. Muehleisen
Linotype machine..... D. Petri-Palmedo
Linotype machine space bar..... J. H. Street et al
Liquids, apparatus for automatically controlling the flow of..... A. Priestman
Logotype machine, 2 pats..... P. T. Dodge
Loom warp stop motion..... G. E. Chandler
Loom warp stop motion..... 3 pats. W. H. Baker
Loom, weft replenishing..... A. E. A. & G. Walker
Loom weft replenishing mechanism..... A. E. A. & G. Walker
Looms for weaving, flange of warp beams used in..... W. Blackburn
Lubricator..... E. A. Herny et al
Lubricator..... J. W. Lester
Lubricator..... O. G. Kipp
Lumber edge dresser..... J. F. Finnegan
Magazine charger..... T. C. Johnsen
Match box..... A. E. Smith
Mechanical movement..... F. L. Eager
Mechanical movement..... W. C. Winfield
Metal cutting and stamping apparatus, attachment for..... G. Gardner
Metal, extruding..... W. Hoopes
Meter..... J. D. Walsh
Milk and making same, peptonized..... J. H. Campbell
Mining apparatus, placer..... J. L. Weaver
Mining coal..... 2 pats. C. R. Claghorn
Mold..... J. A. Stransky
Molding device..... F. J. Hall
Molding device..... J. P. Ball
Molding machine..... J. B. Ramp
Molding machine..... E. D. Misner
Molding machine or apparatus..... J. P. Hall
Monkey wrench..... A. Stenech
Mop holder..... W. B. Lacy
Motor..... J. W. Smith
Motor control system and switch therefor..... L. A. Tirrill
Mower and sweeper, motor lawn..... W. H. & H. T. Coldwell
Mowing machine shoe..... A. A. Simpson et al
Musical instrument..... D. C. Spurgeon
Musical instruments, pneumatic motor for controlling sheets of..... M. Clark
Nest box..... W. H. Rice
Nut lock..... E. W. Stevens
Nut lock..... J. W. Frqua
Nut lock..... F. C. Anderson
Nut lock..... L. A. Cull
Oil heater..... H. W. Wagener
Oil to piston rods and engine cylinders, device for conducting..... C. B. Wenner
Optician's strap former and gage pliers..... Z. F. Highsmith
Ore jig..... 2 pats. M. P. Baugh
Ore reduction, apparatus for treating slimes in..... G. A. Duncau
Ore treating machine..... J. R. Parks
Ores, apparatus for treating refractory..... J. Leede
Ores containing antimony, treatment of..... J. S. MacArthur
Ores, treating..... J. R. Parks
Oven, baker's..... G. F. Smith
Oven, portable..... J. E. Mohan
Package fastener..... J. C. Condo
Package filling machine..... H. Smith
Packing for reciprocating parts..... L. Katzenstein
Packs on pack animals, means for fastening..... C. H. Baker
Painting machine, wheel..... E. L. Moran
Paper binder strip holder..... E. C. Elder
Paper making machine..... J. Perrigot
Peat and artificial fuel machine..... J. O. Green et al
Penholder..... W. A. Boyce
Phonic apparatus..... T. H. Macdonald
Photographic plate carrying and changing apparatus..... W. A. Peters
Picture hanger..... W. T. Shute
Pile driver, sheet..... A. B. Clark
Pipe joint calking appliance..... P. Mueller
Pipe lines, repairing..... J. Welsh
Planter..... A. L. Burtt
Planter..... C. N. Choate
Plate bending machine..... E. W. Summers
Plow..... E. Yarbrough
Pole piece..... A. Churchward
Power transmitting mechanism, web feeding mechanism for..... A. A. Du Bois
Printing press..... W. M. Clark
Propeller shaft mounting and bearing..... W. Clarkson
Propulsion wheel..... A. C. Fletcher
Protractor..... A. E. Fuberg
Pulley frame, sash..... W. C. Fischer
Pulley weight..... F. R. Parker
Pulp boards, machine for making..... F. E. Keyes
Pulp felting machine..... F. E. Keyes

Pulverizing and stone separating machine. J. P. Hall
 Clay pump. S. S. Whipp
 Pump. Centrifugal. E. A. Hardison
 Pump. Vacuum. J. C. Dean
 Pumping apparatus. P. C. Hewlett
 Punching machine. W. C. Yeatman et al
 Punching machine. H. G. Morse
 Puzzle. 3 pats. E. C. Howland
 Race track machine. C. W. Collyer
 Raft or other craft. C. A. de Lambert
 Rail bond. E. B. Hunter
 Rail brace. J. H. Longworth
 Rail fastener. G. W. Busch et al
 Rail joint. S. Aubry
 Rail joint. B. Wolhaupter
 Railway conductor rail holder. Electric
 Railway coupling. G. L. Courtenay
 Railway rail coupling. F. N. Marston
 Railway rolling stock replacer. D. D. Holmes
 Railway signaling device. J. Irwin
 Railway switch. G. E. Lemmon
 Railway tie. R. B. Lamb
 Railway tie and rail brace. Sheet steel
 Railway track rail gage holder and brace
 therefor. J. H. Crowley
 Railway vehicle brake rigging
 Recording instrument. C. N. Achart et al
 Refrigerating apparatus. M. C. Rynskiet et al
 Resilient wheel. W. C. Hiester
 Ribbon roll retainer. R. Bernat
 Rock drill. 2 pats. T. J. Lynch
 Roll turning apparatus. J. T. Blackett
 Roller mill. G. R. Ford et al
 Rollers together. Mechanism for locking the
 sections of traction. W. D. Gray
 Rotary cutter. W. H. Coldwell
 Rotary engine. I. L. Conkling
 Rotary engine. J. Clark
 Rotary engine. P. O. Grundberg
 Rotating screen. W. W. Windle
 Rubber tread. P. W. Pratt
 Sash fastener. Window. E. L. Dodds et al
 Sash holder or lock. Portable window
 Saw. E. E. Barber
 Saw. H. Dool
 Sawmill set works. H. McDermott
 Scaffold support. M. Cavanagh
 Screw gage. F. Spalding
 Sealing machine. Envelop. D. G. Saunders, Jr
 Secondary battery. J. Langelaan
 Sewing machine. Shoe. J. A. Rhout
 Sewing machine treadle stand. E. B. Allen
 Shaft coupling. W. H. Nicholson
 Shaft coupling. Flexible. A. U. Patchen
 Sheaf carrier attachment. D. W. Smith
 Shearing guide. C. W. Stimpson
 Shears or scissors. W. M. Viser
 Sheathing. Metallic. L. Steinmetz
 Sheet metal clip. H. A. Streeter
 Sheet metal. Manufacturing. A. Ridd
 Shirt. Shooting. C. J. Ferguson
 Shoulder brace. J. H. Bailey
 Show case. S. Jessop
 Show jar. Transparent. K. Panay
 Shutter worker and latch. H. G. Richardson
 Sifter. Gyrotory. J. Warrington
 Sight and force feed lubricator. B. Ivor et al
 Sign. Electric. C. T. Bradshaw
 Sign. Illuminated. G. E. Turner
 Sign. Illuminated. D. F. Duck
 Skate. E. Humold
 Sled runner. M. E. Good
 Soot catcher. J. Klein
 Sound record shaving machine. J. F. Ott
 Sounding device. S. Earle
 Spark arrester. T. Nimmo
 Spear. R. W. Butler
 Speed limit controller. F. Lundsten
 Spinning, doubling and twisting yarns or
 threads. Machine for. W. Gaskell
 Square. Detortion timber. J. Herche
 Stability to unstable bodies. Means for im-
 parting. L. Brennan
 Stacker. Swinging. C. A. Beebe
 Stalk cutter. J. R. Weatherly
 Stanchion. Cattle. C. W. Mayer
 Standards simultaneously adjusted. Twin. F. W. Coy
 Station and program indicator. A. H. Wood
 Steam engine. J. H. Hoyer
 Steam generator. D. Crowther
 Steam generator fire box. D. Crowther
 Steam separator. C. E. Huxley
 Steam trap. H. H. Humphrey
 Sterilizers to mouthpieces. Device for apply-
 ing. O. H. Savage
 Strainer. M. C. Hernan
 Suspenderettes. I. N. P. Stokes
 Suspenders. H. E. S. Chayes
 Swingletree connection. C. A. Ross
 Switch throwing device. E. Jones
 Switchboard for meter tests. R. A. Dangier
 Synchronizing system. P. Ribbe
 Table. A. Murick
 Tank lug. E. N. Harmon
 Telegraphic receiver. A. Muirhead
 Telegraphic transmitter. A. Muirhead
 Telegraphy. Electric. A. Muirhead
 Telegraphy. Receiver for use in wireless. E. Branly
 Telephone call mechanism. T. R. Campbell
 Telephone system. K. B. Miller
 Telephone system. W. W. Dean
 Theaters, &c. Signaling apparatus for. T. E. Miller
 Thill iron. C. Heilrath
 Threads. Device for the manufacture of ar-
 tificial silk. R. Linkmeyer
 Threshing machine. M. Davis et al
 Threshing machine bagging attachment. R. V. Wallace
 Ticket cabinet. W. Camph
 Ticket. Transfer. W. C. Pope
 Tiles, brick and the like. Manufacture of. J. H. Marlow
 Time recording device. A. D. Ray
 Tire. A. De Laski
 Tire and rim. J. Butler
 Tire setter. G. W. Tinkey
 Tire setter. B. Ballenger
 Tobacco box. Plug. F. E. Bowman
 Tobacco pipe. N. B. Stone
 Tongs. Lifting. J. P. Hall
 Tool. C. S. Schultz

Torpedo. Railway signal. 2 pats. F. Dutcher et al
 Tower. Rotary pleasure reissue. W. R. Snyder
 Toy. F. Hordich
 Track sanding device. W. H. Kilbourn
 Tree guard. M. B. Lloyd
 Trolley. W. P. Wiemann
 Trolley appliance. F. P. Criner
 Trolley catcher. S. J. Buckland
 Trolley wheel. J. C. A. Riecke
 Trousers presser. H. A. Tenent
 Truck. W. H. Armstrong
 Truck bolster. Car. J. Schaffer
 Truck. Car. W. F. Kiesel, Jr
 Truck for moving heavy loads. G. Benisch
 Tubing for shafts and tunnels. Construction
 of joints in. R. Hoffmann
 Tubing. Making lapweld. 2 pats. G. Schumann et al
 Tuning pin protective cap. I. B. Rosenkrantz
 Turbine. Fluid. J. H. K. McCollum
 Turbine governing mechanism. Elastic fluid
 Turbine governing mechanism. R. H. Rice
 Turbine. Reversing. L. Heilmann
 Turbines. Nozzle for elastic fluid. O. Junggren
 Tweezers. F. L. Hann
 Type. S. R. Withers
 Type writer cover. J. L. Ramsay
 Type writing machine. G. W. Sherin
 Typographic machine. H. A. Agricola, Jr
 Umbrella handle. Detachable. B. Rothschild
 Union. J. T. & G. W. Hayden
 Urea. Making. H. Foersterling et al
 Utensil handle. C. B. Stephen
 Valve and choker for operating hydraulic
 presses. Automatic change. A. W. Fraenck
 Valve. Gate. C. Jaeger
 Valve. Hydraulic. W. G. Chryst
 Valve repairing machine. W. Kardatzke et al
 Vehicle brake apparatus. E. H. Johnson
 Vehicle evener. A. L. McGregor
 Vehicle spring. L. L. Shedd
 Vehicle wheel. F. A. Seiberling
 Ventilator. W. H. Jardine
 Vessels. Apparatus for taking up the slack
 in the steering ropes of. J. F. Hanscom
 Veterinary mouth speculum. M. McNalley
 Wagon. Dumping. A. Schmitt
 Wagon spindle. Detachable. J. H. Tynes
 Wagon standard. J. H. Cook
 Wall. 4 pats. J. A. Ferguson
 Wall coating composition. E. F. Reed
 Warping machine electrical stop motion. R. C. Borchert
 Water can. M. E. Gray
 Water closet. D. S. Schureman
 Water closet. J. F. Leanhart
 Water closet flushing valve operating mech-
 anism. J. E. Fitzgerald
 Water elevator. Windlass. L. Y. Randall
 Water heater. A. Winter
 Water heater. J. McCartney
 Water tube boiler. J. Kennedy
 Weather strip. A. Lorchbough
 Weft fork mechanism. W. H. Redding
 Weight for reciprocating devices. Variable
 return. H. J. Leschen
 Weight supporting device. A. Maloney
 Well cleaning out device. G. W. Osborn et al
 Whalebone substitute. E. M. Bossuett
 Wind power mill. J. Maiz
 Winding machine. Bobbin or quill. H. Wilde et al
 Wire drawing dies. Machine for forming. J. A. Horton
 Wire fabric machine. C. M. Lamb
 Wires. Clamp for attaching ground. G. R. Blackburn
 Woodworking machine. J. Warren
 Woodworking tool. H. Simpson
 Wool. Separating extractive and adhesive
 matter from. A. P. Quackenbos
 Wrench. B. C. Davis
 Yarn reel. L. F. Earl

DESIGNS.

Chair frame. G. Stickley
 Chair frame. Dining. G. Stickley
 Fabric. Pile. F. E. Kip
 Inkstand. 3 pats. F. M. Ashley
 Locket. G. Mason

Issued August 15, 1905.

MECHANICAL PATENTS.

Acids into stearic acid. Converting oleic. A. de Hemptinne
 Adding and printing machine. C. Wales
 Addressing machine attachment. E. D. Belknap
 Advertising curtain device. F. C. Chapman
 Air and gas for illuminating purposes. Ap-
 paratus for mixing. H. L. Karger
 Air brake. E. B. Temple
 Air brake system. G. E. Congdon
 Air compressor. W. Engelking
 Air compressors. Combined front cylinder
 head and cross head supporting frame for
 steam and power. J. G. Leyner
 Air ship. J. Spies
 Ambulance and vehicle loading device. W. R. Hill
 Anchoring device. Temporary. M. F. Stowe
 Automobile. C. Delp
 Axle. Vehicle. S. H. Robeson
 Bag holder. I. N. Medsker et al
 Bait holder. H. S. West
 Bale ties, &c. Machine for tightening. C. A. Hartmann
 Baling press. J. E. Page et al
 Ballot box. T. R. Freeman
 Bandage rolling machine. F. G. Wilkins
 Bank. Savings. C. L. Chambers
 Barrel locking device. C. T. White
 Base board. A. W. Cox
 Bath tub seat support. H. E. McBryde
 Bearing. Roller. I. A. George
 Bed slat brace or bracket. F. C. Mosler
 Berry box. C. C. Hiers et al
 Bib. Launderable. A. Homeyer
 Bicycle handle bar. S. Angrove
 Bicycle pump. F. B. Merry
 Bicycle saddle. H. M. Perkin
 Bicycle seat support and pump. J. F. Scanlan
 Binder. Temporary. H. Elinoff

Binder. Transfer. L. M. Leslie
 Bluing device. E. C. Fales
 Boat reversing device. C. F. Kraut
 Boiler. G. M. Wingard
 Book mark. G. L. Van Buren
 Books. Device for containing article of ordi-
 nary use in connection with. H. M. Hinsdill
 Bottle. Non refillable. B. Henniger
 Bottle. Non refillable. G. Rommel
 Bottle opener. L. King
 Bottle stopper securing machine. C. W. Dill
 Bottles. Washing and sterilizing. C. H. Loew
 Bowls. Division contrivance for centrifugal. B. Lundstrom
 Box. J. H. Hooker
 Box cover. F. L. Wetzel
 Box machine. Cylindrical. W. H. Stout
 Brake beam forming machine. J. F. O'Connor
 Bristle tufts. Apparatus for segregating. H. Nielson
 Bronzing machine. M. Smith
 Brush. Air. J. A. Paasche
 Brush. Fountain. J. Caddell
 Brush. Tooth. R. D. Andrews
 Bucket. Coal. J. D. Isaacs
 Building block. O. D. W. Imman
 Bunsen burner. J. T. Lister
 Butter cutter. A. R. Selden
 Butter. Renovator. S. S. White et al
 Button and loop clasp. W. C. Howard
 Cabinet. W. N. Merritt
 Cabinet. Kitchen. S. H. Ford
 Calipers. F. M. Davis
 Call service apparatus. C. E. Jennings
 Can handling apparatus. S. Johnson
 Candle shade holder. T. C. Richards
 Candy stirrer. Confectioner's. M. Raubold
 Cane juices. Preparation for clarifying. G. B. Williamson
 Cans and the like and articles, produced
 thereby. Finishing. I. Eisenstein
 Car brake mechanism. F. L. Clark
 Car construction. Manufacturing metallic
 members used in. R. N. Lowry
 Car construction. Metallic. T. R. Brown
 Car coupling. Railway. A. Fodor
 Car door lock. T. Code
 Car door operating mechanism. J. S. Stevenson
 Car fender. W. B. Rohmer
 Car lubricator. Street. W. T. Ewing
 Car. Railway passenger. reissue. G. Gibbs
 Car safety device. Motor. B. Lev
 Car signal. F. H. Ensign
 Car unloader. W. P. Whitney
 Carbohydrates. Solvent for nitro-derivatives of. R. N. Riddle
 Carburetor for explosive engines. H. L. Jensen
 Carcasses of hogs and other animals. Appar-
 atus for dividing the. H. Pratt
 Carousel. F. O. Dogenhardt
 Carpet fastener. Stair. A. J. Voigt
 Carriage. Motor. R. M. G. Phillips
 Carriage top buckle loop. F. A. Neider
 Cartridge packet. J. H. Blake
 Cash register. E. O. Maschker
 Cement. Burning. B. E. Eldred
 Centerboard for vessels. Sectional. V. L. Ogidinsson
 Chain. E. Nolle
 Chart. Dress pattern guide. T. McCampbell
 Chromates. Making. P. Romer
 Churn. C. H. Shipplett
 Churn. M. C. Winders
 Churn attachment. M. Reed
 Churn. Barrel. C. Raw
 Circuit breaker. H. P. Davis et al
 Clamp. J. G. Joberg
 Cleaning device. Fountain. H. B. Howell
 Clevis. Spring. W. B. Smith
 Clock. Electric. M. Fischer
 Clothes drier. J. Ubl et al
 Clothes drier. A. M. Padmore
 Clothes line reel. W. A. Loxterman
 Clutch. G. Enrico
 Clutch. Flexible power transmitting ring. G. F. Sturgess
 Clutch mechanism. Reversing and change
 speed. R. Symonds, Jr
 Cock. Motor. J. C. Silsby
 Code system. F. Pimentel
 Collapsible box. F. D. Hale
 Collar. Horse. J. P. Cooper
 Concentrating table. Dry. H. M. Sutton et al
 Concrete foundations. Floor retainer for. J. Prescott
 Concrete or cement building blocks. Box for
 use in making. J. W. Minor
 Conduit switch gate. A. W. Banister
 Conduit threader. C. B. Rodgers
 Container closure. A. V. Payne
 Controller operating mechanism. W. D. Pomeroy
 Conveying apparatus. F. K. Hoover et al
 Conveying mechanism. C. W. Crosby
 Cooking vessel. J. B. Owens
 Copying press. Rotary. H. Earl
 Corking machine. H. J. Williams
 Crate. Banana. A. M. Meyer et al
 Creosoting the ends of poles, &c. Apparatus
 for. J. L. Gilmore
 Crupper fastener. J. A. Peek
 Cultivator. A. H. Pence
 Current apparatus controller. Alternating. R. P. Jackson
 Cycle. Motor. J. G. Hughes
 Dental operation tool. R. Dreher
 Dental tool. Hand operated. C. P. Gray
 Digger head. Stubble. A. Lindgren
 Distilling apparatus. L. E. Beers
 Door closer and check. J. B. Erwin
 Door hanger and track. Combined. J. H. Vivian
 Door operating device. Automatic. A. C. Urban
 Door stile and rail boring machine. L. Brodt
 Douche. C. W. Meinecke
 Draft rigging. reissue. H. T. Krakau et al
 Dredger. Suction. M. C. Harris
 Drill tool coupling. F. Eder
 Drinking fountain. J. V. McCormick
 Driving mechanism. J. Ulrich
 Dye and making same. Azo. T. Kroeber et al
 Ear stopper. G. B. Frank
 Elastic fabric. J. L. Gilson
 Electric circuit plug box. H. G. Osborne et al
 Electric cut off. Automatic. R. M. Griffith
 Electric motor. R. E. Barker
 Electric motor controller. R. P. Jackson
 Electric switch. B. S. Luther
 Electric switch. M. V. Ayres et al

Electric switch. G. S. Dunn
 Electric switch. E. M. Hewlett
 Electrical distribution system. S. Krohn
 Electrical terminal connection. I. De Kaiser
 Elevator device. Illusory. R. F. Rice
 Elevator for loading and unloading coal, &c.
 G. E. Holland et al
 Ensilage in silos. Mechanism for distributing. J. C. Perry
 Envelop. A. de Saint Chamas
 Envelop. R. M. Wilson
 Envelop. Safety. J. H. F. Grazier
 Excavating machine. W. E. Brown
 Explosive compound. N. Ceipek
 Eye shade. W. J. Newlin
 Eyeglasses, &c. Holder for lenses of. G. H. Winslow
 Face protector. A. Hendricks et al
 Face shield. J. Lang et al
 Faucet. L. L. Thoret
 Feed mechanism. J. C. Danton
 Feed water filter and purifier. M. P. Osbourn
 Feeding device. Animal. O. V. Cole
 Fence machines. Automatic feed for wire. J. Harris
 Fence post mold. P. L. Schaaf
 Fertilizer distributor. J. C. & W. J. Pope
 Fiber forming machine. Hard. C. G. Rupert
 Fifth wheel. D. P. Cooper
 File. Bill. J. Koedig
 File. Paper. L. Canda
 Filter. Adjustable coffee. H. W. Welles
 Filter pulp packing machine. K. Kiefer
 Fire alarm apparatus. Electric. E. Fuller
 Fire cracker and other article of fireworks. L. Nordlinger
 Fire escape. R. S. McPheeters
 Fire escape. J. Sjastram
 Fires in petroleum, &c., springs. Preventing
 and extinguishing. C. Gausch
 Firearm. H. B. Febiger
 Firearm sight. J. Windridge
 Fish hook. J. G. Henzel
 Flat iron and stove. Combination. E. H. Richardson
 Floor jack. M. A. Wallum
 Fluid pressure brake. H. H. Westinghouse et al
 Folding box. J. R. Medley
 Folding table. M. Landsman
 Forging apparatus. J. H. Baker
 Frozen liquids. Apparatus for the manufac-
 ture of. J. J. Glauser
 Fruit washer. A. Cerruti
 Fuse. Safety. 2 pats. J. Sachs
 Fuse. Shell. 2 pats. J. L. Sticht
 Fuse terminal. H. W. Gibbs
 Game apparatus. C. N. Lamont
 Game apparatus. E. E. Graves
 Game apparatus. G. W. Walk
 Game bag. L. W. Harpham
 Game device. V. Peter
 Garment fastening. C. A. Couch
 Garment supporter. I. H. Lott
 Garment supporter. T. E. White
 Gas generator. Acetylene. J. R. Thompson
 Gas generator. Acetylene. E. G. Peyton et al
 Gas heater for tailors' irons and the like. E. H. Henniger
 Gas or vapor mixing apparatus. J. C. Harper
 Gear. Speed changing. G. Enrico
 Gear. Speed changing. F. H. Heitger
 Gearing. H. H. Goodsell
 Gearing. Reversible transmission. C. W., Jr., & T. E. Case
 Glass plant. Plate. M. Daiger
 Glass window and other leaded glass con-
 struction. Leaded. E. Ford
 Glassware manufacturing apparatus. A. R. Wilson et al
 Governor. W. L. R. Emmet
 Governor for steam engines. Combination in-
 ertia and centrifugal throttle. W. D. Carter
 Grain drying apparatus. C. P. Friese
 Grease compression cup. 2 pats. H. S. Blynt
 Grinding and polishing wheel. C. E. Harris
 Grinding machine. E. H. Parks et al
 Gun. Breech loading. C. A. King
 Gun carriage. Field. A. T. Dawson et al
 Gun. Shot. F. H. Cokerost
 Hammer. W. A. Clason
 Hammer. Power. W. Graham
 Hand. Artificial. Z. D. Taylor
 Harness. E. G. H. Zimmerman
 Harrow or cultivator. Disk. S. V. Kennedy et al
 Harvester. Corn. W. H. Roe
 Harvester. Corn. B. H. Tripp
 Harvester. Pea. S. Nettleship
 Hat frames. Device for forming wire. W. M. Jameson
 Hat frames. 2 pats. W. M. Jameson
 Hat frames. Form for making twisted wire. W. M. Jameson
 Hay elevator. S. P. Lerch
 Hay tedder. F. W. Dill et al
 Heater. S. M. Aughinbaugh
 Heater. L. H. Meres
 Heels of boots and shoes. Means for equal-
 izing the wear on the. J. H. Waite
 Helical forms. Apparatus for the manufac-
 ture of. W. P. Farber
 Holder attachment. G. J. O'Haire
 Horse power. Portable. W. W. Dingee
 Horse releaser. S. Stanley
 Horseshoe. J. H. Gay
 Horseshoe. Nailless. W. Tarrant
 Hub. E. H. Lampe
 Hydrant and hose coupling. W. R. Thurston
 Ice cream machine. J. J. Glauser
 Illusion apparatus. Marine. E. C. Boyce
 Induction arrester. E. C. Paramore
 Injector. R. F. Davis
 Injector burner. A. C. Rush
 Inkstand and pen rack. Combined. H. M. Willis
 Insulated railway rail joint. B. G. Braune
 Insulator. W. W. Dunsmore
 Ironing board. A. E. Langworthy
 Ironing board. Folding. H. Pike
 Jeweler's tool. E. C. Chamberlin
 Journal bearing. S. C. Auker-Holth
 Journal box. Car. T. H. Gilbert
 Journal. Lubricating. A. H. Layton
 Knife. H. S. Schultz
 Knitting machine fashioning device. B. T. Steber
 Knob and bell. Combined door. J. O. Morris
 Knob lock. Door. A. Marion
 Knuckle joint. W. Crutelow
 Lace making machine. A. Matitsch
 Lacing. Shoe. E. Falconer
 Ladder, elevator, or lift. Aerial. A. W. Shaw

Lamp guard. Incandescent electric..... C. P. Anderson
 Lamp socket..... W. Uschmann
 Latch Gate..... L. H. Zanders
 Ledger and letter file. Combined..... J. J. King
 Lever motor power..... S. McClellan
 Life preserver..... H. T. Manlove
 Lifting device..... H. S. Barton
 Lifting jack..... A. Schatz
 Limekiln..... S. W. Sloop
 Linotype machine..... 3 pats..... P. T. Dodge
 Linotype machine..... D. S. Kennedy
 Linotype mouthpiece..... R. Collins
 Liquid heater..... H. Feldmeier
 Liquid separator. Centrifugal..... B. Ljungstrom
 Loader..... P. J. & R. P. Conklin
 Locomotive..... W. E. Symons
 Locomotive footboard..... S. Mize
 Loom shuttle..... C. B. Webster
 Lubricator..... H. Casler
 Lubricator..... D. Van Winkle, Jr
 Mail crane..... W. E. Westermann
 Match box..... W. G. Lewi
 Match box..... J. L. H. Brodeur, Jr
 Match box..... N. D. Vassilaros
 Material. Apparatus for obtaining desired quantities of..... 2 pats..... W. E. Nickerson
 Mattress..... R. M. Van Eaton
 Mattress tufting apparatus..... G. W. Bent
 Measure or square. Tailor's..... G. Colosimo
 Measuring fluids..... J. A. Tilden
 Measuring, folding, and invoicing cloth machine for..... W. H. Morgan
 Measuring instrument..... J. H. Kimball
 Merry-go-round..... B. Kippels
 Metallizing plant..... A. R. Pritchard
 Mining apparatus..... A. McDougall
 Mining sluice..... P. Bouery
 Mirror. Glass reflecting..... C. A. Parsons et al
 Mitten..... R. B. McMasters
 Motion transmitting, regulating and reversing apparatus..... E. D. Ackerman
 Mower. Lawn..... J. Bruk
 Mowers. Grass catcher for lawn..... C. K. Hann
 Musical instruments. Tone expression controlling device for mechanical..... T. Danquard
 Musical wind instrument..... J. Schwarz
 Numbering machine..... W. A. Porter
 Numbering machine..... C. F. Smith et al
 Nut cracking machine..... S. M. Brown
 Oil burner. Crude..... J. C. Ziegler
 Oil cup..... 2 pats..... J. L. Hecht
 Ordnance. Breech loading..... W. R. Smith
 Ordnance loading device..... C. P. E. Schneider
 Ore briquets. Agglomerating iron, waste, etc. for the manufacture of..... T. Rouse et al
 Ore roasting furnace..... H. C. Hothoff
 Oven. Baking..... J. F. Lorentz
 Packing..... L. W. J. Marsden
 Paper carton..... H. G. Eckstein
 Paper hanging machine..... A. C. Redman
 Paper jardiniere or package for flower pots..... H. E. & E. Collenburg
 Paper writing sheet. Compound..... L. E. Meacham
 Pastry knife. Combination..... F. A. Tobler
 Pavement..... G. W. & W. T. S. Crichfield
 Pen..... J. W. Thompson
 Pencil holder. Pocket..... W. H. Vance
 Phenol esters. Making..... F. Sparre
 Phonograph..... E. J. Rector
 Photographic emulsions. Producing..... F. Rompler
 Photographic plate developing apparatus..... J. D. Lyon
 Piano pedal..... G. Merritt
 Piano pedal. Self-playing..... J. Wieser
 Piano. Self-playing..... J. Wieser
 Picture hanger..... C. Schultz
 Picture hanger..... F. E. Lehman
 Pins and the like. Catch device for..... V. Guidone et al
 Pins of brooches, &c. Fastener for the..... C. Singleton
 Pipe joint..... H. J. Everson
 Pistol. Magazine..... O. F. Mossberg
 Pitman connection..... A. Grieves
 Planter. Corn..... W. L. Beall
 Plaster, &c. Apparatus for the manufacture of slabs or blocks of..... B. C. Simpson
 Plow attachment. Disk..... W. S. Cook
 Plow truck attachment..... L. Pore
 Plug. Attachment..... H. T. Paiste
 Plug. Attachment..... G. B. Thomas
 Plug. Drift..... R. D. Gould
 Pneumatic despatch tube apparatus..... E. A. Fordyce
 Pneumatic motor and speed governor..... T. Danquard
 Pneumatic service system carrier..... H. Burl
 Pole attachment. Neck yoke..... M. Dunham
 Polishing wheels. Machine for bending metal scrolls for..... V. W. Jewett
 Portable house..... J. A. Walker
 Post cap..... F. L. Hughes
 Potato digger..... G. A. Troxler
 Powder saluting charge. Smokless..... F. I. Du Pont
 Power transmitting mechanism..... T. L. & T. J. Sturtevant
 Pressing machine. Hydraulic..... W. H. Fisher
 Pressure controlling device..... W. F. Krichbaum
 Pressure regulating device..... H. H. Westinghouse et al
 Printing and auditing device..... E. J. Brandt
 Printing machine. Blue..... W. O. Wakefield
 Printing press..... G. F. Read
 Printing press..... W. Scott
 Printing press. Rotary web..... H. A. W. Wood
 Projectile..... E. Gathmann
 Projectile..... H. B. Beale
 Pulley belt shifter. Step..... E. Kottusch
 Pulley. Wood..... J. E. Swineford
 Pulp. Machine for pressing wood from wood..... C. W. Roberts
 Pump lining. Centrifugal..... P. J. Hedlund
 Pump motor cooling means..... P. J. Hedlund
 Pump rig. Oil well..... S. F. Field
 Puncture closure..... A. T. Vigneron
 Rack..... J. O'Hare
 Rail guard. Third..... M. Zuger Mayer
 Rail joint..... C. Bush
 Rail joint..... F. Bachmann
 Rail joint..... W. Sutherland
 Rail joint closure..... M. O. Rockwell et al
 Railway carriage lock..... J. Haag

Railway block signal system. Electric..... F. R. McBERTY et al
 Railway gate and signal. Automatic..... J. L. Johnson et al
 Railway gate. Automatic..... C. E. Mickle et al
 Railway paving plant..... F. A. Hetherington
 Railway rail joint..... E. A. Weil
 Railway rail joint..... E. F. Walsh et al
 Railway rail stay..... E. C. Tecktonius
 Railway switch..... R. H. Scheibert
 Railway tie. Metal..... J. A. Lippert
 Railway train signal..... S. E. Foreman
 Railways. Electrical safety apparatus for signaling on..... H. Cousin
 Railways. Means for transmitting electricity to vehicles on electric..... A. Beer
 Razor and hair cutter. Combined safety..... E. J. Deneen
 Recorder..... G. N. Engert
 Renovator. Pneumatic..... J. S. Thurman
 Reverberatory furnace..... A. M. Gaylord
 Revolver extension grip..... G. A. Baribeault
 Revolving chair..... G. J. Adam
 Rheostat. Water..... W. D. Pomeroy
 Ribbon roll controlling device..... M. Schubert
 Rock drill or rock drilling machine..... H. Hellman et al
 Rolling metal. Helical rolls for..... F. L. & W. L. Price
 Rotary engine..... L. S. Bellah
 Rotary engine..... P. C. Dahl
 Rubber body to another body. Attaching a..... R. Whitaker, Jr
 Rule holder. Mechanic's..... J. P. Whitby
 Sad iron heater..... B. Bryan
 Safety pin..... H. F. Stowell
 Salt holder..... D. H. Beyea
 Sash cord clamp..... J. W. Finckley
 Sash hanger. Storm..... J. Diehl
 Sash lock. Ventilating..... W. A. Nichols
 Sash operating device..... F. W. Smith et al
 Sash. Window..... P. A. Sholey
 Sash. Window..... O. M. Otte
 Saw guide. Band..... D. C. Prescott
 Saw. Hard..... R. W. Hawkins
 Saw handle..... O. C. Hanson
 Saw machine. Band..... B. Risheberger
 Sawmill dog..... W. H. Trout
 Scale. Spring..... M. H. Wilson
 Scorifiers. Tool for handling..... E. Keller
 Scraper. Wheeled..... M. Dunn
 Screw driver..... G. Shelton
 Screw key. Ratchet..... C. Contal
 Separator..... A. F. Hoffecker
 Setting out, scouring, and stuffing machine..... J. W. Deckert
 Sewing machine. Overedge..... G. Keyser
 Sewing machine shuttle..... C. H. Chittum
 Sewing machine smocking attachment..... A. Laubscher
 Sewing spangles on fabrics. Machine for..... M. F. Nassberg
 Shade attachment..... J. K. Putnam
 Shaft. Flexible..... A. C. Kadlowec
 Sheaf carrier attachment..... D. W. Smith
 Sheep shears..... W. Seedhouse
 Sheet metal can..... F. M. Assmann
 Ship. War..... J. Slonka
 Shipping system..... C. H. Fisher et al
 Shoe stretcher..... F. L. Walker et al
 Sieve cleaner. Grain..... J. B. Cornwall
 Sifter. Ash..... H. Holgren
 Sign. Illuminated..... S. I. Butters
 Signal system. Block..... F. B. Corey
 Siphons. Apparatus for charging gas domes for..... A. Klienfeldt
 Slack adjuster and pulley alining device..... J. R. Fordyce
 Sled..... S. L. Allen
 Sled runner..... S. L. Allen
 Slide..... W. C. Howard
 Smoking pipe draft regulating device..... C. A. Couch
 Socket washer..... C. G. Ette
 Sound reproducer..... A. L. Irish
 Speed indicating or governing apparatus..... L. E. Cowey
 Spinning machine driving cylinder..... J. W. Anderson
 Spraying apparatus..... C. Gibson
 Spring making machine. Helical..... F. M. Stambaugh
 Square..... H. W. Nagel
 Square. Folding..... A. Johnson
 Square. T..... J. A. Robinson
 Stamp mill..... C. J. Hodge
 Stamp pad inking device. Rubber..... J. S. Trimble
 Starching machine..... P. M. Cave
 Stay making machine. Dress..... C. A. Kelly
 Steam boiler..... J. E. Haarmann
 Steam generator..... C. B. Scherrer
 Steam generator..... H. R. Stickney
 Steering and braking mechanism..... J. D. Metcalf
 Stereotype casting boxes. Means for cooling..... W. Scott
 Storage battery..... G. K. Hartung
 Stove. Self feeding coal..... M. R. Lehmann et al
 Stovepipe. Adjustable..... C. C. A. & H. T. Nelson
 Strainer..... M. A. Conklin
 Stroke mechanism. Full..... J. F. Ohmer
 Superheater boiler..... J. E. Bell
 Surgical bandage..... C. Fuhrhans
 Surgical bandage plaster..... J. Benario
 Swimming apparatus..... C. P. Randolph
 Switch..... F. R. McBERTY
 Switch operating mechanism..... R. M. Stephens et al
 Switch rod..... W. K. Bryce
 Switching mechanism. Electrofluid pressure..... W. J. Bell
 Tank heater..... H. L. Ferris
 Tank support..... P. P. Sturdevant
 Telegraphy. Space..... 2 pats..... F. Braun
 Thill coupling..... R. E. Stenzel
 Thill coupling..... W. M. Jenkins
 Threshing machine band cutter and feeder..... J. R. Harrison et al
 Ticket clip. Railway wagon..... B. F. Cocker
 Tile mold..... J. H. Chidester
 Time recording apparatus..... R. Burk
 Tins. Means for appliance for cutting off the lids of square..... H. J. Langley et al
 Tire fabric. Pneumatic..... C. L. Marshall
 Tire inflating connection. Rotating..... A. L. Olson
 Tire. Pneumatic..... J. O. Haas

Tool. Combination..... D. L. McKinney et al
 Tool. Combination..... H. C. Williams
 Tool dressing jack..... G. E. R. Hughes
 Tool. Drifting..... R. D. Gould
 Tooth. Artificial..... H. P. Osborn
 Tooth. Metallic backed..... W. G. Hughes
 Toothpick..... R. R. Freeman
 Transplanting implement..... T. J. Peters
 Traversing mechanism..... W. E. Magie
 Trolley mounting..... G. E. Henry
 Trolley wheel..... F. E. Bryan
 Trousers stretcher and creaser..... H. C. Warfel
 Trunks, &c. Corner piece for..... J. P. Clark
 Tub lifter..... I. Dowlen
 Tubular boiler..... W. H. A. Robertson
 Tunnel. Subaqueous..... 2 pats..... D. D. McBean
 Turbine. Elastic fluid..... M. H. P. R. Shankey
 Turbine. Multiple impact..... T. G. E. Lindmark
 Turbine. Multiple impact..... H. Lentz
 Twyer iron and fire pot. Combined..... L. Silcott
 Type distributing apparatus..... A. A. Low
 Typewriter cabinet and copy holder. Combination..... E. E. Chesney
 Typewriting machine attachment..... H. A. Briggs
 Union, reducer and expansion joint. Combined..... W. R. Sheckler
 Valve. Compound locomotive..... F. J. Cole
 Valve. Cylinder drain..... J. A. Kennedy et al
 Valve. Flush..... J. P. Goodfellow et al
 Valve for pneumatic instruments. Bellows..... G. W. Bemis
 Valve gear. Steam engine..... P. Miller
 Valve lubricating mechanism. Fluid pressure..... T. R. Brown
 Valve. Steam engine..... E. F. Needham et al
 Vehicle body..... T. Lotherington
 Vehicles. Steering, driving and braking device for wheels of motor..... C. H. Atkins
 Vending perfumes and other liquids. Coin controlled apparatus for..... L. L. Martin
 Vessel cooling apparatus..... L. A. de Mayo
 Vessels. Closure for containing C. Schroeder
 Vise..... J. P. Schneider, Sr
 Wagon. Dump..... R. E. H. Wurdisch
 Watch..... W. E. Porter
 Watch protector..... N. E. Landin
 Water heater..... B. P. Smith et al
 Water heater..... L. H. Meres
 Water purifier..... C. L. Kennicott
 Water supplying apparatus..... C. H. Godfrey
 Wells. Treating oil..... F. H. Oliphant et al
 Wind wheel..... A. Gran
 Windmill..... W. F. Miller
 Wire applying device. Stay..... H. Prouty
 Wire finish nail..... A. J. Chase
 Wire stretcher..... F. W. Hann
 Wire stretcher..... W. M. Sanders
 Wrench..... E. T. Foster
 Wrench..... R. A. Brooks
 Wrench..... E. L. Bellman
 Wrench..... C. F. Sperry

DESIGNS.

Book cover..... W. M. Rhoads
 Comb..... F. W. Grell

Issued August 22, 1905.

MECHANICAL PATENTS.

Air ship..... W. C. Branch
 Amalgamator..... E. S. Moss
 Ammonia. Making..... 2 pats..... K. Kaiser
 Antiseptic compound..... A. M. Clover
 Assay furnace..... A. M. MacDuffee
 Axes. Manufacture of..... B. W. Peterson
 Axle lubricating means..... J. G. Dole
 Bag holder..... A. Deuel
 Bagasse burning furnace..... H. G. Guinac
 Balance escapement..... F. Gundorph
 Baler. Hay..... G. M. & M. J. Johnson
 Bales. Changing the shape of and compressing..... S. J. Webb
 Baling press..... J. W. Hobson
 Barge. Pressed steel..... J. S. Martin
 Barrel making machine..... R. L. Cummings
 Barrel. Ventilated..... G. H. Brown
 Bath tub..... H. M. Weaver
 Batteries. Sheet metal for perforated pockets of storage..... T. A. Edison
 Bearing. Ball..... R. N. Schalkenbach
 Beer cooler..... R. S. Wiesenfeld
 Belt. Waist..... H. J. Galsman
 Bias gage. Adjusted..... W. C. Fay
 Binder. Temporary..... C. E. White
 Binder. Temporary..... T. R. Eddy
 Blowpipe..... C. Bauer
 Bobbins. Making moisture repellent..... C. E. Nutting
 Boiler..... S. Otis
 Boiler tube cleaner..... H. F. Weinland
 Book leaf holder..... F. G. Powers
 Boring tool..... J. D. Hazlet
 Bottle cleaning machine..... L. C. Sears
 Bottle filling device..... 5 pats..... H. G. Roth
 Bottle. Non adjustable..... M. Conley
 Bottle. Non refillable..... P. Gronemeyer
 Bottle. Non refillable..... M. T. Wright
 Bottle. Non restoppleable..... J. J. Manchester
 Bottle wrapping machine..... A. Forbes
 Bottles in bottle corking machines. Apparatus for feeding..... A. A. Pindstoffe
 Box..... G. H. Farrington
 Brake shoe. Composite..... D. O. Ward
 Breaker. Rotary..... J. M. Schultz
 Brick. Hollow building..... O. Forster
 Brick making machine..... H. C. Barker
 Building construction..... F. Kalweit
 Building purposes. Composition of matter for..... F. B. Marvin
 Bulkhead door..... D. W. Taylor
 Bulkhead door operating mechanism..... D. W. Taylor
 Bung holes and the like. Temporary closure for..... A. Hoerr et al
 Bung. Tapping..... G. E. Bachelder
 Burial casket..... C. C. Adams
 Bushing. Tap..... G. Stroh
 Butter cutting machine..... N. W. Kline
 Cabinet bath..... A. A. Verel
 Cable grip..... H. S. Moore
 Caissons. Air lock apparatus for..... E. W. Moir
 Caissons and tunnels. Air lock apparatus for..... E. W. Moir

Calender. Embossing..... J. Kleinewefers
 Calipers..... J. H. Coor
 Car closure. Milk..... J. H. Wine
 Can band shaping machine..... J. Brenzinger
 Car brake. Street..... M. Klein
 Car coupling..... J. Kaiser
 Car door hanger..... E. F. Neff
 Car door supporting device..... L. A. Thorson
 Car dump..... H. Inmann
 Car end construction..... J. M. Hansen
 Car grain door..... J. Iverson
 Car grain door. Freight..... L. A. Thorson
 Car handling device..... J. V. Shaefer
 Car or locomotive. Electric..... N. D. Levin
 Car platform..... A. Melgarejo
 Car seat. Swing back..... C. K. Pickles
 Car structure..... C. K. Pickles
 Car wheels. Forged..... C. T. Schoen
 Car wheels. Forging..... C. T. Schoen
 Cars. Automatic coupling for steam, air, or other pipes of railway..... F. F. Sipps
 Carburizer..... F. Schmitt
 Card. Letter..... W. Leopold
 Carding machine..... R. B. Robinson et al
 Casement fastener..... G. L. Fisher
 Cash register..... J. Pfeifer
 Cattle guard block..... H. B. Stewart
 Cement, clay, or like material. Device for use in the manufacture of ornamented or figured plates or tiles of..... G. Dahl
 Chain. Driving..... W. Thompson
 Chair iron..... J. Gilson, Jr
 Check. Baggage..... W. F. McPhail
 Checkrein holder for harness..... C. E. Hawkins
 Cheese cutter. Computing..... J. H. Osborne
 Chimney..... M. Jr., & S. E. Keith
 Cigar rest..... W. W. Harris
 Circuit closer..... J. Friedlander
 Cloth pin carrier..... L. A. Hall
 Clothes pin making machine..... J. H. McBride
 Clutch. Friction..... A. E. Holcomb
 Coal cutting machines. Tool holder for cutter chains of..... E. & A. A. Hopkinson
 Coal hole cover..... F. Kees
 Coating machine..... S. Hopkinson
 Cocoa, &c. mill..... F. P. Croft
 Coffee and tea pot cover..... H. L. Happer
 Coin controlled mechanism..... C. E. Holmes
 Coking oven..... F. Pallenberg et al
 Collar and cuff shield..... B. T. Montgomery
 Combustion. Device for separating the products of..... W. Cline
 Compound pipe or tube..... J. H. Nicholson
 Concrete piles, columns, and the like. Machine for manufacturing..... A. C. Chenoweth
 Concrete posts. Removable fabric fastener for..... W. L. Northam
 Conduit stopper..... W. D. Gherky
 Cooking device..... S. R. Brooks
 Core drill..... W. S. Smith
 Core making machines. Agitator for..... M. J. Covell
 Corner post, transom bar, and the like..... J. C. Davidson
 Cotton chopper and cultivator..... W. G. & J. V. Sugg
 Cotton to a stand. Machine for cutting..... J. H. Williams
 Couplings. Machine for assembling the parts of..... F. M. Stambaugh
 Crate. Egg..... L. L. Kellogg
 Crate. Folding..... F. W. Smith
 Cream separating..... L. R. Lewis
 Creasing and folding device..... E. C. Naylor
 Crib. Convertible..... A. A. Hayden
 Cultivator..... O. J. & C. A. Sefton
 Cultivator..... C. E. A. Stickle et al
 Cultivator and weed cutter. Surface H. A. Vail
 Curtain and shade bracket. Combined window..... J. D. De Pew
 Cylinder lubricator..... H. G. Elmore
 Dental instrument..... W. E. Harper
 Detachable handle for implements..... J. L. Thomas
 Display stand. Hat..... A. K. Anderson
 Distilling apparatus. Water..... D. W. Daley
 Door..... J. F. Gray
 Drawing roll covering..... C. Shipp
 Dredging machine..... J. W. Humphreys
 Dust proof joint..... G. W. Tidrick
 Dye. Black azo..... 2 pats..... M. Herzberg
 Edge finishing machine..... H. W. Brett
 Electric circuit regulator. Automatic..... M. Waddell
 Electric furnace..... H. N. Potter
 Electric motors. Controlling..... W. Geipel et al
 Electrical meter..... H. W. Sayles
 Electrical regulation apparatus..... 2 pats..... A. S. Hubbard
 Electrode for primary batteries. Negative..... D. L. Winters
 Electromagnetic compensating device..... B. A. Stowe
 Elevator safety device..... F. H. Babcock
 Elevator safety device..... J. J. Brown
 Embroidering machine..... A. Sanrer
 End gate. Wagon..... P. Walker et al
 End gate. Wagon scoop..... R. Lowry
 Engine..... F. Stratton
 Engine muffler and alarm combined. Explosive..... E. P. Gray
 Engine power steering gear. Traction..... H. C. Clay
 Engine vaporizer. Explosive..... J. B. Moreland
 Engraving and etching metal..... J. A. Dejeay
 Eraser..... C. E. McGill
 Excavating machine jack arm..... E. B. Stone
 Explosive engine for motor vehicles..... F. C. Goddard
 Eyeglasses..... W. L. Bemis
 Fabric flocking machine. Woven or other..... J. M. Brown
 Fabric slitting machine..... J. A. Cameron
 Fastening hook..... I. N. Lawson
 Fastening. Temporary..... G. P. Thomas
 Fence weaving machine. Wire..... G. Jaeger
 Fertilizer distributor..... I. W. Davenport
 Fifth wheel..... W. T. McCreary
 Filaments from viscose. Manufacturing..... C. A. Ernst
 Filter..... J. T. H. Paul
 Finger nail trimmer..... 2 pats..... C. S. Carter
 Fire alarm. Automatic..... K. J. Backman
 Fire alarm system..... J. McJell
 Fire escape..... E. A. Meaders, Jr
 Fireplace..... L. Stowe
 Fishing pole butt..... C. H. Terry
 Flanges. Making..... W. W. Doolittle
 Flash boiler. Multiple coil..... W. I. Twombly
 Fluid heater..... H. W. O'Dowd

Fluids mechanically. Heating... F. J. Gilroy
Food preparing machine... H. O. Perky
Fuel feeding apparatus... O. E. Wilson
Funnel. Mixing... H. B. Anderson
Furnace... E. P. Stevens
Furnace pan or bottom. Open hearth... F. Baldt
Furniture... J. I. Sherman, Jr.
Fuse. Shell... C. P. Watson
Game apparatus... H. M. Fletcher
Game counter... O. W. Field
Gas burner... J. A. Kimmel
Gas fixture attachment... G. Peters
Gas fixtures. Globe socket for... C. F. Lovell
Gas pressure regulating device... G. Dalen
Gas pressure regulator... S. H. Lanyon
Gas pressure regulator and cut off. Automatic... J. W. Cottingham et al
Gas producer... R. Plutsch
Gases of combustion. Apparatus for purifying... W. Cline
Gases. Storage vessel for liquefied... P. Heylandt
Gate... J. M. Tanner
Gate... N. Whitaker
Gear. Variable speed... A. E. Schaaf et al
Glass. Manufacture of sheet... F. L. O. Wadsworth
Golf marker... A. C. Savage
Governor. Engine... H. E. McLean
Grease compression cup... B. F. Fisher
Gun. Semiautomatic... W. H. Bevens
Gyrating machine. Self balancing... G. W. & F. D. Combs
Hair rat... B. E. Stephens
Halter fastener... J. A. Simms
Hame... M. E. Worden
Hammer. Automatic... E. B. Gibbs
Hanger or supporting device... R. Spengler
Harvester... R. C. Monroe
Harvesting system. Sugar cane... H. G. Ginaca
Hat and coat rack... J. Schipkowski
Hay rake... O. P. Vroom
Hearse... H. J. Hulp
Hides. Treating raw or partially dressed... H. W. Southworth
Hinge leaf... C. S. Van Wagoner
Hinge leaf. Sheet metal... C. S. Van Wagoner
Hoe. Adjustable... C. N. Choate
Hoist chair... H. B. Crandall
Hook... T. E. Corbett
Hook and eye... S. Westcott
Horn... S. Goldberg
Horn. Amplifying... 2 pats. C. J. Eichhorn
Horseshoe... R. Johnson
Horseshoe attachment... A. F. Martins
Horseshoe calk sharpener... H. P. Christie
Hose or pipe coupling... E. Devlin
Hose rack... C. Wright
Hose supporter... H. C. Barlow
Hose to water pipes. Tool for wire binding... A. J. Novachesky
Hub and axle... D. E. Barton
Ice and ice cream cartridge. Water... S. Lustig
Ice cream cutter... C. A. Kulenkampff
Identifying means for recorders... W. I. Ohmer
Internal combustion engine... C. A. Carlson
Invalid table... J. H. Ramberg
Jar fastener... E. Abramson
Journal box... S. Otis
Jug and tester for milk, &c. Combined... H. Taylor
Justifying mechanism... B. F. Bellows
Keg. Metallic... C. A. Crane
Knit goods. Finishing... T. S. Baron
Knob attachment... G. A. Scheer
Lace fastener. Shoe... C. Delano
Lace fastener. Shoe... J. A. McCoy
Ladder... I. Clark
Lamp. Electric arc... B. A. Stowe
Lamp fixture... W. H. Spencer
Lamp hanger and cut out... Arc C. E. Harthan
Lamp. Incandescent electric... A. W. Miller
Lamp. Inverted incandescent... L. Wolff
Lampsocket. Electric... A. P. Seymour
Lampsocket. Incandescent... N. Marshall
Land roller... H. E. & H. Z. Youtz
Leaf holder. Loose... W. P. Pitt
Lever. Chain... J. F. Boyd
Lighting device... T. S. Sayre
Limekiln... B. E. Eldred
Line throwing apparatus... W. Schermuly
Liquid heating apparatus... H. Junkers
Liquid heating vessel... T. H. Carmichael
Liquid separator. Centrifugal... M. H. Matty
Lock device. Percussion... M. Hermsdorf
Locking bolt. Adjustable... G. Brueggemann
Locomotive frame pedestals... Wedge bolt for... F. P. Sharp
Locomotives. Tow line guide for towing... G. Meyer
Loom shedding mechanism... W. J. Lutton
Loom take up mechanism... G. Goodline
Loom temple... F. Ott
Lubricator... A. C. McCord
Lubricator... I. A. Randel
Lubricator... J. Buckley et al
Mail box... O. S. White
Mail receiver... F. Heinz
Manhole fitting for storing and other vessels... W. Heiser
Match machine... W. F. Hutchinson
Match making machine... J. W. Lundgren et al
Match safe... P. Paquette
Matrix blank making machine... L. Quanchi
Measuring machine for feet and lasts... J. H. Schaefer
Mechanical movement... D. P. Deely
Metal. Machine for cutting scrap... F. F. Deely
Metal surfaces. Decoration of... F. A. Hermann
Metallic leaf in right lines upon the surfaces to be ornamented. Machine for depositing... W. H. Coe
Micrometer gage... C. W. Pitman
Milking machine... W. M. Mehrling
Mixing device... M. Hulvorsen et al
Molding apparatus... W. J. Sterling
Mordant... G. M. Lawton
Motor... D. J. Shea
Motor control system... C. E. Lord
Mower. Lawn... F. R. Neuhaus
Nail clipper... G. Havell
Nozzle... F. L. Titsworth et al
Nut. Axle lock... E. T. Foster
Nut lock... J. F. Fish
Nut lock... F. M. Marx
Obstetrical pad... E. H. Pearson
Oil burner. Residue crude... J. M. O'Neill
Oil cup... H. B. Sherman
Open hearth furnace... F. Baldt, Sr.

Ore roasting furnace... C. E. Keating
Ore roasting furnace... W. T. Rushton
Organ tremolo... T. V. Challior
Oven. Draw plate... G. S. Baker
Package covering machine... H. Inman
Packing. Piston... P. H. Weaver
Paint cover... C. F. Dibble
Paint composition... W. A. Hall
Panels. Manufacture of molded or embossed... T. J. Palmer
Paper making machine driving mechanism... H. S. Ferguson
Paper stock to pulp. Reducing... F. P. Miller
Peeler. Tomato... G. G. Glenn
Pendulum beat adjuster... A. M. Lane
Pen wiper and ink well. Combination... L. S. Hoyt
Penholder... P. L. Keller
Phonograph... H. S. Mills
Phonograph disk record cabinet... A. J. Farrell et al
Picker check... W. H. Ayer
Piling. Metalsheet... J. R. Williams
Pill tile... W. E. Teahorn
Pipe wrench... W. H. Brock
Pipes. Split sleeve for gas, water or other... H. Rochat
Piston connecting rod. Trunk... R. Willetts
Planing machines. Means for operating... M. Kellow
Planter. Check row corn... T. Gatewood et al
Planter. Corn... T. M. Hendrickson
Playing ball... R. G. Wingfield
Plow... M. Z. Thomas
Plow attachment... M. M. Plate et al
Plow or cultivator blade. Corn... C. Grabe
Plow. Shovel... H. A. Jones
Print washing and drying machine... C. F. Pease
Printing presses. Mechanism for driving reciprocating bed... H. M. Barber
Printing wrapping paper. Apparatus for... N. B. Palmer
Pug mill... H. M. Tennille
Pump attachment. Oil well... S. Drennen
Punch. Center... C. Seitz
Punch. Ticket... R. Woodman
Rail. Guard... S. Clary
Rail joint... J. S. Bryan et al
Rail joint... G. Sheckler
Railway construction... A. Marx
Railway rail... G. E. Kephart
Railway rail joint... C. A. Fisher et al
Railway rail joint... J. Quinn
Railway signal... V. K. Spicer
Railway signal. Electric... J. Friedlander
Railway signaling system... L. N. Lyon, Jr.
Railway tie... W. W. Green
Railway tie. Metallic... B. W. Ellicott
Railways, tramways and the like. Switch or point for... A. J. Smith
Ration pack... A. M. Davis
Razor stop... E. Tolman
Reclining chair... C. Conn
Record or tally sheet... E. F. D. Bates
Reeling machinery... W. H. Dunkerley, Jr.
Reversing mechanism... S. B. Dixon
Rivet making machine... W. S. Bidle et al
Rotary engine... N. H. Smith
Rotary engine... W. Scott
Sanding device... C. Thompson
Sash fastener... T. Wertz
Sash holder... B. L. Wright
Sash weight... J. R. N. Curtin
Sausage filling machine... H. Ernst
Saw... C. Dilks
Saw. Jig... A. B. Callins
Scraper. Dirt... P. J. Petterson
Sealing sheet metal vessels hermetically. Machine for... C. F. Mendham
Sewing machine thread measuring mechanism... G. L. Corcoran et al
Sewing machine thread tension... G. M. Eames et al
Sharpener. Harrow disk... A. E. Durner
Sharpening apparatus. Mower... E. C. Springer
Shepherd's crook... 2 pats. J. B. Timberlake
Ships' cabins. Door holder for... W. K. Crofford
Shoe. Burial... J. B. Lange et al
Shoe clasp... E. J. Gurren
Shoe turning machine... 2 pats. G. B. Gardner
Shoe upper holder... W. E. Ellis
Shoestring fastener... M. I. Parker
Shovel standard... H. G. Sawyer
Signaling by reflecting the rays of the sun or other light. Apparatus for... J. F. Watson
Signaling system. Syntonic... M. Milch
Slatting composition and producing the same... P. Bell
Steigh... A. Ellwanger
Sliding jaw wrench... W. O. Shrook
Smoking pipe... W. B. Reilly et al
Soldering and surplus solder removing machine. Can... 2 pats. M. Leitch
Soldering machine. Can... T. Graham
Soldering machine. Can... J. C. Taliaferro
Sole stamping machine... F. J. Burke
Spike puller... D. O'Brien
Spinning ring and traveler... D. Harrington
Stacker. Hay... W. Fagan
Stacker. Hay... S. J. Covey
Stamps. Ribbon paper for time and other... W. I. Follett
Stanchion. Cattle... I. W. Rugg
Steam generator... W. I. Hoover
Steam trap... J. W. Cottingham
Steam trap... C. W. Franklin
Stone. Making artificial... W. P. Butler
Stone. Manufacturing artificial... J. Staudt
Straw blower... J. Wolf
Sugar. Making... J. V. P. Lagrange
Switch... C. M. Hibbets
Switch operating device... C. C. Johnson
Switching device... C. J. Carlson
Syringe. Vaginal... W. P. Flowers
Tablet molding press... J. F. Buckley
Tag... R. Gras
Talking machine tablet carrier... G. W. Gomer
Tap hole closure for casks, barrels, &c... A. Consen
Telegraph apparatus... H. C. Braun
Telegraph and telephone system. Composite... C. Turchi
Telegraph key... W. H. Schermerhorn
Telegraph system. Multiplex... T. Giara
Telephone hook switch... J. M. Clement
Telephone operators' cord circuits. Automatic listening apparatus for... J. M. Lattig et al
Telephone selective system... N. S. McKinsey et al

Telephone system... E. Land
Telephone system... C. R. & D. R. Green
Temperatures. Solar apparatus for producing high... M. A. G. Himalaya
Ten pin base truing machine... E. P. Van Mater
Thimble. Thread cutting... W. H. Gay
Ticket... J. A. Loyster
Tile... W. P. Meeker
Tile. Drain... E. C. & H. L. Litchfield
Tile mold... J. Moore
Tire bolt wrench... J. D. Smith
Tires. Antislipping attachment for vehicle... W. J. Smith
Tires, &c. Valve for pneumatic... C. Nielsen
Tool handle... E. A. Schade
Tool holder... W. Gibson
Tool holder... E. C. Peck
Torch... G. H. Hernecker
Tower or derrick frame... H. Eck
Toy gun... C. Seitz
Toy house... J. M. Thompson
Toys. Spring motor for... H. T. Kingsbury
Track sander. Pneumatic... H. Rau, Jr.
Track sanding device... J. H. Hanlon
Track switch. Overhead... G. E. Hauptman
Train control system. 2 pats. C. E. Lord
Tramways. Automatic bucket holder for aerial... E. F. Crawford
Tramways. Clip for traction ropes of aerial... E. F. Crawford
Transformer... E. W. Rice, Jr.
Transom lifter... H. Osborne
Tray and stand. Combined... G. W. Treichel
Trolley... H. B. Clarke
Trolley wire repair device... H. Dams
Tubing. Manufacture of compound... J. H. Nicholson
Tunnels. Air lock apparatus for... E. W. Moir
Turbine... T. D. J. C. & H. A. Prescott
Turbine. Elastic fluid... A. Patschke
Turnbuckle locking device... C. Teleszo
Turpentine gathering device... J. W. Kennedy
Type casting machine. Automatic... S. J. Sennett
Typewriter registering attachment... D. J. Richardson
Union. Adjustable slip joint... C. H. Perry
Urea and making same. Akyl-oxy-acetyl... E. C. Clemmensen et al
Valve... J. B. Waring
Valve... W. Meer
Valve. Dry pipe... J. McAlear
Valve. Fluid pressure controlling... R. W. Barton
Vapor burner... F. E. Stanley
Vehicle driving means... E. M. Mard
Vehicle. Motor... H. A. Knox
Vehicle seat support bottom... W. B. C. Heisley
Vehicle steering mechanism. Motor... H. W. Alden
Vehicle top brace joint... O. Kirchner
Vehicles. Means for utilizing the motive power of motor... E. M. Caffall
Vise... E. Hultgren
Wagon. Dump... J. D. Olcott
Wagon. Dumping... W. A. Currie et al
Wagon running gear... G. F. Thompson
Warp stop motion mechanism... G. O. Draper
Washboards. Soap retailer for... J. Derr
Washstand for kitchen sinks... G. Amelung
Watch demagnetizer... P. Kerns
Watch guard... A. Fishmann
Watch roller and hand remover... L. J. Williams
Watch roller remover... E. C. Weissmiller
Watch roller remover... L. J. Williams
Water closet cistern... C. W. Lendh
Water gate... H. A. Icke
Water softening and purifying apparatus... 2 pats. H. H. Suro et al
Weather strip... G. N. Guthrie
Weighing and bagging machine. Automatic... R. D. Webb
Weighing and package filling apparatus. Automatic... W. E. Nickerson
Wheel... 2 pats. D. C. McCan
Wheel rim... H. Pataud
Whip socket... H. F. Walbaum
Wind instrument... H. J. Ellis
Window. Metallic... S. U. Barr
Window screen... J. A. Wilson et al
Window screen... E. J. Hawks et al
Window tightener... G. H. Dyer
Wood. Bending... J. A. Wilkinson
Wrapping machine... A. Forbes
Wrench... E. F. Atkinson
Wrench... H. J. Conrath
Wrench... G. McKercher
X-ray apparatus. Portable... E. W. Caldwell

DESIGNS.

Lamp shade... 2 pats. A. H. Heisey

Issued August 29, 1905.

MECHANICAL PATENTS.

Acid flues. Fan case for... N. L. Heinz
Acid. Making nitric... H. H. Nedenfuhr
Acid producing apparatus. Carbonic... G. Walzel
Acid tank... W. O'Neill
Air brake for railway trains. Compressed... C. Luysers
Air brake hose... F. A. Magowan
Air electrolyzing apparatus... A. Johnson
Alkaline metal oxid. Making... R. Hutzler
Alloy... A. E. Hobson
Amusement apparatus... A. Cobley et al
Animal blanket... C. H. Carli
Annealing furnace. Wire... J. F. Warwick
Annunciator. Electric... H. Usener
Anthracene compound and making same... A. M. H. Isler
Awning. Window... A. W. Stueberoth
Apparel. Device for drying, stretching, and airing articles of... K. Walsh
Bags. Article carrier for hand... J. C. A. Riecke
Bait moving device... O. Holz et al
Baling press block inserter... J. H. Pitkin
Bark splitting machine. Duplex... H. L. Staley
Bearing propeller shaft thrust... S. S. Eveland
Bed clamp... W. D. Patrick
Bed rail joint. Metal... A. E. Simms
Bedstead... C. H. Gasau

Bedsteads. Swinging leg for folding... F. B. Williams
Beer cooling apparatus... A. A. Pelsinger
Belt replacer... W. Volkel
Bills, &c. Duplicating apparatus for... G. M. Strond
Binder... J. Schade Jr.
Binder. Loose leaf... H. C. Blackmer et al
Blasting compound... G. Dittmar
Boat. Submarine... R. d'Equerville
Boiler... W. W. Bonson
Boiler and tank head... A. Kraeizer
Boiler furnace. Steam... H. S. Woolley
Boiler tube cleaner... M. H. Thompson
Bottle... C. M. Conradson
Bottle cap removing device... F. R. Kent
Bottle capping machine head... G. H. Gillette
Bottle closure... P. Manns
Bottle. Non-refillable... C. M. Conradson
Bottle. Non-refillable... G. T. Ross
Bottle. Non-refillable... O. H. Fishburne
Box cover... E. M. Wright
Box lid lifter... S. F. Gilmore
Bracket shelf... H. F. Latley
Brake shoe... C. L. Bundy
Brush and mop holder. Convertible... M. R. Kelley et al
Brush. Scrub... I. B. Sanders
Brushes. Machine for the manufacture of... P. H. Alexander
Brushes. Manufacture of... P. H. Alexander
Bucket. Ash... E. A. Bagby
Buckle. Cross line... W. I. Kenison
Buckle guard... T. N. Martin
Buggy top rest... E. Wiet
Butter cutter... P. M. Scanlan
Butter separator... N. T. Hanson
Button. Crochet work... J. Kalliwoda
Cabinet. Portable dressing... F. E. Mistrot
Calculator... J. B. A. Paradis
Camera... J. B. Levy
Camera stand... J. B. Levy
Canning apparatus... J. T. Wilmore
Car coupling... M. J. Carter
Car door... C. L. Spurlin
Car door... H. E. Sallee
Car draft rigging. Railway... J. F. O'Connor
Car draw bar centering device. Railway... 2 pats. J. F. O'Connor
Car fender... W. W. McClung
Car seat pedestal... R. Dunning
Car stock... E. Wyatt
Cars. Antifriction bearing for railway... J. J. Lake et al
Cars. Fan driving mechanism for railway... S. Terzian
Carbureter... G. Johnson
Carbureter. Gas engine... S. B. Wolgast
Caster... E. E. Canedy
Cattle guard... G. O. S. Conway
Cement block molding machine... D. D. Stringer
Cement clinker. Manufacture of... C. Ellis
Centrifugal separator... P. H. Watts
Chair attachment... M. Libotte
Chandelier and gas bracket... G. W. Pond
Chute. Merchandise... C. F. Cormack
Cigar perforator... D. L. Hill
Cigarette maker... E. P. Lawton
Circuit breaker... H. P. Davis
Circuit controller attachment. Supplementary... W. Lintner
Clamp... H. Diflo
Clock. Electric alarm... J. McCarthy
Clutch mechanism... W. H. Scotton
Clutch mechanism. Variable speed... T. J. Kehoe
Coal screen and slater... F. Allard
Coin protector. Field... H. E. Dubois
Coin controlled device... J. H. Dean
Coking furnace... G. Wolters
Concrete block molding flask... P. G. Swanson et al
Conduit for electric wires... L. W. Lyle
Conduits. Building... P. Aylett
Confectionery and the like. Apparatus for manufacturing... H. T. Averay-Jones
Control system... 2 pats. E. R. Carichoff
Controller... H. E. White
Controller... G. H. Hill
Conveyer trough and chute... G. R. Young et al
Copy holder... I. Hartley
Cork feeder. Crown... W. H. Wheeler
Corn popper... H. Dalby
Compler mechanism... D. Schustek
Crate. Folding... H. H. Bell
Cream separator... H. Kibele
Crushing and grinding mill for quartz. Centrifugal wet... L. C. Graupner
Crushing rolls... R. K. Humphrey
Cultivator... G. W. & J. A. Schwarz
Curtain stretcher... H. A. Schwarz
Cuspidor. Sanitary... C. E. Bostwick
Designs, pictures, letter and the like. Reproducing... W. Ostwald
Die punching apparatus... J. G. & M. O. Refhus
Die stock... M. L. Bush
Die. Threading... W. A. Leonard
Dinitroglycerin and making the same... A. Mikolajczak
Display board for seed packages... W. D. Ross
Door bolt or fastener... S. L. Harris
Doubletree and whiffletree... F. G. Winnek
Dough or like plastic material. Machine for dividing... R. Norton
Dress suit case and the like... J. D. Wood
Drill presser wheel attachment... T. Brennan, Jr.
Drum. Heating... J. Holt et al
Drying apparatus... F. Johnson
Dust collector... 1 pats. O. M. Morse
Dye. Yellowish azo... F. C. Gunther
Edge setter... P. R. Glass
Electric circuit controller... E. R. Carichoff
Electric circuit controller. Automatic... A. Sundh
Electric generator cooling apparatus... B. Bidwell
Electric machinery. Brush or collector for dynamo... J. H. Hallberg
Electric motor controller... G. Laird et al
Electric switch... H. E. White
Electric switch. Pressure operated... E. H. Dewson
Electrical distribution system... A. S. Hubbard
Electrical machines. Ventilating device for cores of... R. Siegfried
Electrocapillary apparatus... 3 pats. J. T. Armstrong et al
Electrocapillary apparatus. Actuating... J. T. Armstrong et al
Electrode of electrolytic apparatus... G. J. Atkins

Electromobile charging device... F. P. Cox
Elevator lock and stop... H. E. Schneider
Elevator safety cut off, Automatic...
Elevator shaft doors, Automatic releasing
mechanism for... J. Stevens
Ellipsograph... J. L. Perkins
Engine indicator, Steam... C. B. Bosworth
Engine starting crank, Explosive...
W. H. Shoonmaker
Engines, Air cooling device for... G. Wolfe
Engines, Excavating attachment for traction
... C. H. Wolfe
Engines, Starting and signaling mechanism
for explosive... A. Winton
Engraving or etching metallic surfaces, Ma-
chine for... C. A. & W. A. Ker
Everer, Four and five horse... E. O. Doak
Exercising device... A. Rosenthal
Eyeglass case fastener... M. S. Chism
Fabrics, Manufacturing plaited...
C. A. M. Flamant
Fastening device... H. A. Donalds
Faucet... S. F. Baker
Faucet, Measuring... O. Ludwig
Feed water regulator... C. B. Edwards
Fence... J. C. Chibber
Fence loom... J. S. Barnes
Fence post... reissue... E. Bruley
File, Letter... R. Spurgin
Filing case, Metallic... E. L. Krag
Films, Adjustable holder for shading...
J. J. Drumb
Filter press... H. T. Shriver
Filters, Removing solid or semisolid ma-
terial from containers of pressure...
C. W. Merrill
Filtering apparatus... W. W. Wilson
Fire alarm... H. A. Marshman
Fire box and grate... C. W. Jewett
Fire extinguisher... H. A. Myers
Fire extinguisher... H. L. Carpenter
Firearm sight... J. Windridge
Firearms, Ejector mechanism for breech-
loading... E. S. Watson
Fireproof blinds or curtains, Roller for...
E. H. McCloud
Fish trimming and splitting machine...
C. P. Hale
Fishing device... F. K. Eastman
Fitting... C. B. Lord
Floor surfacing machine... M. L. Schlueter
Formaldehyde generating apparatus...
reissue... E. F. Billings
Fountain comb... P. L. Frost
Funnel, Measuring... L. H. Sterrheimer
Furnace bosh wall cooling device...
E. Dreyssing et al
Furnace smoke consumer... D. D. Thorpe et al
Galvanoscope... J. T. Armstrong et al
Game apparatus... M. S. Cross
Garment hook... A. Berg
Garment supporter... E. M. Town
Gas burner mantles, Support for incandes-
cent... M. Herskovitz
Gas burner, Self closing or safety... J. Thiers
Gas, Generating... C. Ellis
Gas generator, Acetylene... A. Forander
Gas heater... M. C. Green
Gas mantle, Self lighting incandescent...
F. C. von Heydebrand
Gas producer... C. Ellis
Gases, Removing arsenic from...
2 pats... M. Scharff et al
Gaseous fuel burners, Starting torch for...
R. J. Miner
Gate... E. Butts
Gear, Speed changing... W. H. Scottion
Gear, Variable speed... C. Schoppner
Glass washer... O. Karlss
Grader and excavator, Road...
G. M. Kepner et al
Grain drill... H. J. Case
Greenhouse roofs, Repair clamp for...
A. Klokner
Grinding machine... W. H. Stedman
Grinding machine... H. Wilson
Grinding mill... G. A. Bell
Gun control system... J. L. Hall
Guns, Pivotal cartridge carrier for bottom
loading... T. C. Johnson
Harmonica or mouth organ... H. H. Neilson
Harvester, Cane... W. B. Sharp
Hat box... J. B. La Rock
Hay box stock indicator... J. C. Buie
Hay fork... J. Ducret
Hay or the like, Apparatus for discharging
and stacking... C. von Bechtolsheim
Hay press... C. E. Davis
Heater... S. G. Scanlan
Heating systems, Apparatus for hot water...
C. C. Peck
Heel beading machine... J. M. Grogan
Heel making machine... E. H. Taylor
Hides, Treating... 3 pats... F. J. Oakes
High potential switch... E. S. Halsey
Hinge... J. Fossee
Hoe and edge trimmer, Combined... J. C. Hough
Hoist brake... H. J. Kimman
Hone and strop, Combined... C. E. Overshine
Hoof plane... A. Johnson
Horse fork, Manure... A. S. Milne
Horseshoe calk... G. F. Hallman
Hose coupling... L. R. Nelson
Hose supporter... D. Basch
Hose supporter... E. S. Dorman
Hub, Elastically controlled wheel...
H. M. Butler
Hydraulic press fastening device, Trans-
portable... H. Huber
Ice pick... S. J. Morgan et al
Indolic bodies, Making... P. Seidel
Injector... C. Fero Sr
Injector... N. B. Dodge
Inkstand... F. Jones
Insulated handle... A. E. Hobson et al
Insulating electrical conductors... W. H. Bristol
Insulation of electric conductors... H. Rupley
Insulator... W. R. Twiggs
Internal combustion engine, Two cycle...
M. Ferrero et al
Iron, Brazing cast... J. O. Green et al
Jar... J. C. Anderson
Kettle, Confectioner's... G. F. Dickson
Kiln heating and ventilating device, Dry...
E. F. Rouse
Knob, Door and latch... B. Phelps
Krant press... C. E. Green et al
Label dispensing device... G. H. Brown
Ladder... J. H. W. Bodendieck et al

Ladder, Step... H. C. Rush
Last... W. A. Kreutler
Lasting machine... T. E. P. Hodgson
Latch... E. Praeger
Lavatory or shampooing bowl... M. Housholder
Leaping the letter S... C. P. Honneus
Leather splitting machines, Spring roll for...
W. D. Quigley et al
Leus, Bifocal... B. Mayer
Lever attachment... W. Gordon
Lewis... T. E. McNulty
Linotype machine... J. R. Rogers
Liquid separator, Centrifugal... J. C. Cromwell
Load puller for inclined bridges, &c...
E. Roberts
Locomotive reel, Mine... H. Booker
Log loading and skidding machine... M. Schmalz
Loom for producing several firm bordered
tissues side by side, Power... C. Wilmsen
Loom spindle oiler... C. F. Thompson
Lubricating press, Horizontal... P. Hoppe et al
Lubricator... J. A. Swenson
Magnetic brake... G. W. Gilmore
Mail crane... H. A. Nelson et al
Manure spreader... F. Solberg
Massage apparatus, Self galvanic...
S. R. E. Schmidt
Mattress filling machine... E. J. Antoni
Measure, Tape... F. D. Sole
Measuring instrument... F. Conrad
Measuring instruments, Spring abutment for...
F. Conrad
Meat meal, Preparing... E. Maragliano
Mechanical movement... H. Brammer
Metallurgical furnace... G. H. Benjamin
Milling... L. Cron
Mine door... 2 pats... L. L. Logan
Mining machine... 2 pats... E. R. Merrill
Mixing and kneading machine... L. A. Roberts
Monkey wrench... J. S. Laitinen
Motion transmitting mechanism... T. J. Kehoe
Motor control system... G. H. Hill
Motor controller, Alternating current...
H. L. Van Valkenburg
Mower fender rod... W. C. Rarig
Mower, Lawn... J. Peterson
Mules, Winding motion for self acting...
J. Wilkinson
Music leaf turner... M. J. Martin
Musical instrument, Mechanical... L. Stockes
Musical instrument, Multiple sheet self
playing... H. W. & C. M. Shonard
Musical instruments, Tone modifying device
for mechanical... J. O'Connor
Nails and similar articles, Machine for mak-
ing... A. Laiham et al
Needle threader... W. Carrier
Nut holding wrench... A. Schurr, Jr
Nut, Lock... I. W. Exley
Obstetrical appliance... J. H. F. Smokey
Oil flowing device... J. Kambishi, Jr
Ordnance sight... J. Kurig
Ore concentrator... W. O. Journeay
Ore roasting kiln... J. McNab
Ores, slimes and other materials, Apparatus
for treating crushed... A. Z. Clark
Packing pad... A. D. Alexander
Packing, Piston... L. W. J. Marsden
Packing, Piston rod... C. C. Mason
Paper box... E. B. Weston
Paper holding and guiding mechanism...
A. Schueloch
Paper winding machine... J. J. Warren
Peanut digger and stripper... J. W. Smith
Pen, Reservoir... J. Ballance
Pencil point protector and eraser...
E. P. Alexander
Phonograph motors, Means for sustaining...
E. L. Aiken
Phonograph repeating attachment...
E. L. Aiken
Piles, &c, Device for protecting... P. Aylett
Pillow block... H. Slear
Pipe cleaner, Folding... W. H. Taylor
Pipe coupling, Train... M. J. Carter
Pipe or conduit... P. Aylett
Pipe steam cleaner... F. W. Cooley
Pipe union, Screwed... J. Simpson
Pipes, Means for excluding water from steam
supply... O. L. Hallbeck
Planting machine, Cotton seed... W. T. Evans
Plastic material and the like, Machine for
handling or working... R. Morton
Plastic material, Apparatus for cutting...
W. Niebur Jr
Plow... J. Beard
Plug, Automatic steam chest... P. Wertz
Pocket protector, Garment... E. Heine
Poultry fountain... N. H. Brown
Power transmitting and speed controlling
mechanism... D. H. Reimers
Presses, Mold filling and tamping device for
brick and similar... H. J. Flood
Printing device for paper bag machines...
L. P. Eisenbeis
Propeller wheel... G. M. Welsh
Pulley... H. M. Dumas
Pump or compressor... M. W. Hall
Pumping stand, Pulley... F. E. Linder
Punch cutting machine... J. W. Lewis
Punching out blanks of circular or regular
polygonal shape from plates of sheet metal
or the like, Machine for... G. P. Hoffmann
Radiator... W. R. Kinnear
Rail contact shoe, Third... S. B. Stewart, Jr
Rail joint... T. Refsum
Rail joint... N. P. Cowell
Rail tie... A. S. Gulliford
Railway foot guard... W. Frost
Railway motor, Electric... N. W. Storer
Railway motors, Gear casing for electric...
H. R. Edgecomb
Railway point and crossing... R. A. Hadfield
Railway rail, Compound... W. G. MacLaughlin
Railway switch... H. N. La Flame
Railway switch... 2 pats... V. Angerer
Railway tie... G. Beal
Railway tie... H. W. Avery
Railway track... E. F. Seider
Railways, Grade crossing for... C. S. Osborn
Razor, Safety... R. J. Christy
Razor strop... R. J. Christy
Reciprocating tool, Electrically actuated...
A. M. McArthur et al
Rifle, Magazine and repeating... R. C. Stevenson et al
Rivet machine kicker plate... W. F. Dowerman

Rock drill... M. C. Jackson
Rod and handle holder... R. Barrett
Roofing, Composite... F. W. Gezelesch et al
Rope retaining device... J. E. Briggs
Rotary engine... F. Egeisdorfer
Rotary engine... I. F. Parmenter
Rotary engine... B. F. Augustine
Rugs and the like floor coverings, Lining for...
J. H. Beale
Sash bar... G. M. Voltz
Sash fastener... A. Martin
Sash holder... G. Malcolm
Sash holder... N. Van Horssen
Sash lock... E. L. Wheeler
Saw, Adjustable band... E. T. Manning
Saw mill, Band... C. E. Cleveland
Sawmill set works... W. H. Trout
Screw fastener, Reversible... J. Baumgarten
Screw machine... J. H. Wesson
Screw or terminal, Electrical binding...
M. Bouchet
Separating machine... 2 pats... W. S. Ayers
Service switch... F. C. De Reamer
Sewing hooks and eyes on cards, Machine
for... A. Rainert
Sewing machine hemmer attachment...
C. F. Goforth
Sewing machine spool holder... F. Egge
Sewing machine thread cutting and holding
device... G. S. Gatchell
Sewing machine tool attachment...
J. O. Rollins
Sewing tubular structures, Machine for...
S. Cohn
Shade hanger, Adjustable window...
A. S. Neale
Shears... G. P. Taylor
Shelf, Book... 3 pats... H. P. Macdonald
Shingle cutting machine... W. L. Connett
Shovel handle, Tamping... W. P. Burnitt
Sifter, Ash... E. McCauley
Sifter or bolter... G. A. Bell
Sign, Illuminated... D. S. Lamb
Signal circuit, Electrical... E. W. Vogel
Signaling device for use in case of fire or acci-
dent... E. Stoll
Signaling, Sound receiving means for sub-
marine... J. B. Millet et al
Signaling system, Electrical... J. P. Sauer et al
Siphon head and neck... D. Landan
Skate, Cycle... W. Wurth
Skin shaving machine... W. D. Quigley et al
Sme'ting furnace... H. L. & N. Winkler
Smoke purifier and gas collector...
D. J. Lawton et al
Soap dispenser... W. T. Carter
Sodium ferrocyanide, Making... C. Petri
Spark arrester... M. J. Keelin
Speed and distance indicator... E. Schulz
Speed changing mechanism... R. F. Scott et al
Spindle... V. Belanger
Spinning machine yarn traverse regulating
device... G. P. Miller
Stamp and stamp canceling device...
J. D. De Pew
Stamp band, Hand... L. K. Scottford
Starch, Obtaining soluble... R. Hartwig
Station indicator... E. E. Rothchild
Stay, Garment... E. K. Warren
Steam boiler... G. O. Sturtevant
Steam generator and superheater...
B. E. Eldred
Steam trap... N. Foley
Stocking pressing machine... J. F. Nelson
Stone rubbing machine... J. R. Peirce
Stove or heater, Hot air... L. Judelson
Stringed instrument attachment... C. Mawer
Stubble shaver... F. A. Millet
Sulfite digesters, Attachment for...
W. H. McIntyre
Suspending ring... S. P. Vetter
Syringe, Hypodermic... E. F. Dean
Telegraphy and transmissions across space,
Apparatus for wireless... A. Artom
Telephone and circuit switch or cut-out...
C. Adams-Randall
Telephone, Common battery lock-out...
M. P. Boone
Telephone switchboard... J. L. Wright
Telephone wires, Antihummer for...
B. P. Bartlett
Tender... E. M. Wheelock
Theater appliance... G. R. Mullen
Thermometer... C. W. Pinnam
Thermostatic bar... C. D. Howard
Thills, Means for securing holdback straps to...
W. J. Thomas
Thread dressing machine... G. A. Fredenburgh
Threshing and flax recleaning machine...
J. T. Smith
Tile drying apparatus... J. A. Odell
Tire cap, Pneumatic... H. Harmon
Tire for wheeled vehicles... F. H. Sterling
Tire protector, Pneumatic... A. J. Locher et al
Tire, Vehicle... H. E. Irwin
Tool holder... W. N. Ager
Tool, Motor driven machine... H. H. Clark
Toy... O. Hammarlund
Toy... C. M. Shailer
Toy gun or pistol... J. H. Wiesman
Toy money box... J. H. Bowen
Toy Sounding... M. B. Holstein
Track gauge... C. R. Howard
Track sanding device... J. E. Holcomb
Traction wheel... A. de Souza
Train order delivering device... G. B. Craig
Tram, Lift... J. W. Neff
Trap... A. Triebe
Tray, Sectional... R. J. Carrier
Trolley... F. C. Cottrell
Trolley stand... B. A. Grasberger
Trolley wire finder... P. McDonald
Trunk... M. Radziejewska
Tube corrugating machine... A. Pogany et al
Tubular bodies, Device for cleaning...
J. Herczeg
Tumbler cleaning machine... W. F. Altenbach
Turbine... H. W. Fiske
Turbine, Compound steam... C. V. Kerr
Turbine nozzle, Steam... C. V. Kerr
Turbine speed regulator... B. S. Church
Type bar cushion... W. L. Smith et al
Typewriter... A. Ruffin
Typewriter cabinet... M. J. Haigar
Typewriter paper holder... H. A. Haws et al
Typewriting machine... E. E. Barney
Uterus support, Prolapsed... L. G. Sprague
Vacuum tube... W. S. Andrews
Valve, Combined vent and check... D. F. Morgan
Valve, Explosive engine... G. J. Altham
Valve gear... H. Lentz
Valve gear for explosion engines... R. H. Scott
Valve, Throttle... R. A. Norling
Vegetable cutter... H. J. Hoak
Vehicle spindie... A. H. Worrest
Vehicles, Control of self propelled...
A. G. Davis
Vehicles, Supporting device for superstruc-
tural parts of... reissue... T. J. Lindsay
Ventilator... P. F. Blne
Vibrator, Electric... H. J. Heenev
Vise mount... E. E. Ward
Wagon, Pumping... C. Carroll
Wagon train... A. Koppel
Watch winding and setting mechanism...
C. G. Perrin
Water bag stopper... C. O. Towne et al
Water column... F. M. Foster
Water heater, Electric... E. E. Sager
Water seal trap... G. A. Hally
Water wheel gate... S. E. Heathcote
Wave motor... F. S. Keyes
Weaving apparatus, Hand... M. E. Bartlett
Well cleaning apparatus, Oil... W. E. Gardner
Well drilling apparatus... C. F. Rigby
Wheel... P. J. Caesar et al
Wheel... J. I. Maguire
Whiffletree... G. F. Danielson
Window... F. P. Pfeighar
Window frame and sash... F. A. Winslow
Wire stretcher... C. L. Chapman
Wood to flexible material, Apparatus for
transferring the grain of... T. T. Hollinger
Work holder... A. A. Whittman
Wrench... G. H. Daddymann, Jr

DESIGNS.

Badge... J. R. Willcox
Badge... J. S. Goldsmith
Cane... D. Brown
Charm, Pendant... J. S. Goldsmith
Clock frame... S. M. Lawson
Fabric... W. J. Pope et al
Fabric, Printed textile... E. N. Eames
Lace trimming... C. G. Neuharth
Lavatory... J. H. Gavin
Radiator for shields, Side or bracket...
J. W. Johnson
Suit, Boy's... J. B. Welch

Canadian Patents.

Canadian Patents may now be obtained by the inventors for any of the mechanical inventions named in the foregoing list, provided they are simple, at a cost of \$30 each. If complicated the cost will be a little more. For full instructions address Inventive Age Publishing Co., 918 F Street N. W., Washington, D. C.

Foreign patents may also be obtained in certain other countries.

New Anæsthetic.

The last number of the Deutsche Medizinische Wochenschrift, a weekly medical periodical contains the important announcement of the discovery of a new anaesthetic. It is stated that the editor, in connection with Dr. Franz Hoffmann, had succeeded in producing a substance which possesses all the qualities of cocaine in causing insensibility to pain, and at the same time, has none of the injurious effects of that remedial agent. The new substance has been called by them "alypin."

After numerous experiments the two investigators have been able to establish the fact that alypin is a neutral reagent easily soluble in water, causing insensibility to pain at the place of application; a so-called local anaesthetic in contrast to the effect produced by the generally known anaesthetics, which cause entire loss of consciousness and are in the real sense of the term narcotics.

These experiments have further shown that alypin, while possessing strength equal to cocaine in its effect, is at the same time to be preferred to the latter, because it is less poisonous, produces no enlargement of the pupils, can be used agreeably to and without disturbance of the patient's condition, and that no stricture of the vascular structure follows from its use.

The importance of this discovery is at once evident, for the less the danger connected with the insensibility artificially produced, so much the better it is for the patient and the tranquility of the physicians.

USES OF CASTOR OIL.

To most people, castor oil represents merely a nauseous medicine, administered chiefly in childhood, before one was old enough to protest effectively. It may not be generally known that the functions that castor oil performs in industry and in the arts are of great economic importance. A consideration of the varied uses to which its peculiar properties adapt it, may be of interest.

The trite saying "Every man to his taste" was never better exemplified than by the Chinese custom of using castor oil as a cooking grease, as lard is used in America. A less surprising, but, as judged by our standards, almost equally uncommon custom is the employment of this oil in British India and in other Oriental countries as an illuminant. In British India it is extensively used as a lamp oil, and it is even reported to be the illuminating agent in railway cars.

Within comparatively recent years, that is, since aniline dyes have almost completely supplanted the mineral and vegetable dyes formerly used in coloring cotton textiles, an extensive demand for castor oil has sprung up in the industry of dyeing and printing goods. Without presuming to invade the intricacies of the dyer's art, wherein secret recipes for the composition of colors and their application to cloth are the property of each individual dyer, it may be said that the general principle underlying the utility of this oil in coloring processes is that the aniline and alizarine dyes are soluble in sulphurated castor oil; in other neutral fats and oils, these dyes are generally insoluble. In certain processes of dyeing and printing, therefore, castor oil enjoys a practical monopoly over all other oils.

The popular shade known as Turkey red, famous for the permanence, intensity and beauty of its color, owes its quality of exceptional fastness to castor oil. The coloring matter itself, alizarine, which was originally derived from the root of the madder plant, but is now most wholly supplanted by an artificial dyestuff of the same name obtained from anthracene, a product of the distillation of coal tar, has, like many dyes, little affinity for cotton fiber. Applied directly to the cloth by ordinary methods, it gives a shade of little permanence. To fix this color there is necessary the treatment of the cloth with some substance or agent which, having an affinity for both the cotton tissue and the coloring matter, alizarine, assists in effecting a chemical combination between them. The substance now almost exclusively used for this purpose is castor oil. Mixed with a small quantity of concentrated acid, which is then washed away by a solution of common salt, and soda or ammonia being added to saponify the fatty acids, there is produced from castor oil another oil which is perfectly soluble in water, a property especially desirable for the saturation of cotton cloth. The resultant oil is known by many names—sulphurated

castor oil, sulforicinate, etc.—but from the use to which it is largely devoted, it is generally called Turkey-red oil. The red fixed by it upon cotton cloth is one of the most permanent colors known to the dyer's art. This oil is also used as a substitute for the more expensive glycerine in the treatment of cotton cloth. It has an admirable effect upon starch mixtures, and imparts to the fabric a quality of softness, suppleness and pliancy. It is estimated that more of the castor-oil output of this country is used in the treatment of cotton goods than for any other purpose.

The next most important and more familiar channel of consumption is the drug trade. Castor oil was once regarded as a sovereign remedy. The marvelous advance that has been made in medical science in recent years has resulted in the widespread substitution of less repulsive, if not more efficacious, drugs; although modern preparation in capsules and compounds has had a tendency to perpetuate its traditional uses as a cure-all.

Castor oil has also, in some countries, extensive use as a lubricant. In Australia, its chief application is for this purpose, this vegetable product being more and more substituted for the mineral product, petroleum. To a limited extent this oil is used for lubrication in the United States. As is well known, the mechanical function of lubricating oils is to form a coating or cushion between rotary surfaces, thus keeping them free from contact and preventing loss of power through friction. To this purpose castor oil, being heavy bodied, viscous, and non-drying, is in most cases well adapted. It is the heaviest of fatty oils, and is particularly adapted to the oiling of fast moving machinery because the heat generated keeps it in a liquid state. In the oiling of special kinds of machinery, carriage wheels, etc., it is still used to a small extent in this country; but for general purposes, the cheaper but lighter-bodied mineral oils have almost supplanted all others. The esteem in which castor oil was popularly held as a lubricant, however, is suggested by the fact that petroleum products adulterated with resin are in some instances now sold upon the markets under the designation of "machine castor oil." Castor oil also has properties that adapt it for the dressing of leather, and a demand for limited quantities exists in country districts for use in softening shoes and harness. Among minor uses may be mentioned its application in the manufacture of fly paper, and of the so-called glycerine soap. The consumption of this product in our country amounts to about a million gallons yearly, for all purposes.

About a dozen castor oil mills are located in different parts of the United States, the active centers of the industry being St. Louis, Kansas City, Memphis and Jersey City. The equipment of a castor oil mill is identical in its main feature with that of a linseed oil mill, or of a cotton seed oil mill: that is, the mechanical unit of production is the hydraulic press. Oil

is obtained from castor beans, as it now is most commonly from all oleaginous seeds, by hydraulic pressure. The beans, first cleansed of fragments of capsules, stones, dust, etc., are not decorticated, as cotton seed is, nor crushed between rolls as most oleaginous seeds are, but are pressed whole. Decortication is not necessary, and the operation of crushing is impracticable, because the beans would cake too much upon the rolls. They are heated or not before pressure, according to the purposes for which the oil is destined. Heat renders the oil in the beans sufficiently liquid for easy expression, but if carried to a degree higher than the hand can easily bear, has a tendency to discolor the oil and render it unfit for medicinal, and undesirable for some other uses. The more common custom, therefore, is to press the beans cold by submitting them, inclosed in bags, to gradual pressure for the requisite length of time in a powerful hydraulic press. In most mills, the practice seems to be to submit the beans to a single pressing. In some other countries, after the first pressing, the pulp or pomace is removed from the press, broken into pieces, heated and submitted to pressure a second or even a third time, each subsequent pressing producing a lower grade of oil. The oil as it flows from the press is a whitish liquid, from which the starch, albumen, and mucilage are afterwards removed by careful processes of clarifying and refining; the resultant product is the castor oil of commerce.

Two products are obtained from castor beans by the process of manufacture, the most valuable one, the primary object of the industry, is obviously oil. The other is a residual product, which is in reality an oil cake, but is commercially known as castor pomace. This latter product belongs to that class of oil cakes, including mustard-oil cakes, etc., which have no value as a cattle food, but are used only as fertilizers. In fact, castor pomace, retaining as it does the whole of the poisonous properties of the castor beans from which it is derived, is fatal to live stock. But, containing both potash and phosphoric

acid, and being especially rich in nitrogen, it is well adapted to material uses. The high percentage of all it contains prevents its rapid decomposition in the soil, and thus prolongs its fertilizing effects. In some sections of the United States, castor pomace is highly regarded as a fertilizer for tobacco and hops. In India, where more of it is used than in any other country, it is esteemed as a manure for potatoes, wheat, oats and corn.

The yield of oil and pomace that may be obtained from a given quantity of castor beans varies according to the condition of the beans and the climatic conditions. Thirty-two per cent is the average of oil extracted in the United States. Our sources of supply of castor beans are located chiefly in Oklahoma, Kansas, western Missouri and southwestern Illinois. Twenty years ago, Kansas produced as much as 400,000 bushels in a single year; but this has fallen off heavily, and our annual crop for the entire country is now below 100,000 bushels.

Overcoming a Traction Problem.

A device for increasing the adhesion between wheels and rails is the invention of Robert C. Lowry, of Seattle, Washington.—The object of the invention is to improve and simplify the construction of such devices. In carrying out the invention, a truck is employed having a plurality of wheels adapted to run upon a common rail, a magnetizable bar being fixedly supported and extending between the wheels and having pole-pieces upon its ends related to the wheels. The bar is disposed with its pole-pieces opposite their respective wheels adjacent the point of contact thereof with the rail. An electric coil is mounted on the bar.

Subscribe for the Age.

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the INVENTIVE AGE, which publishes a list of all patents issued each month, and the current decisions of the courts in patent, trade-mark and copyright matters. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

P A T E N T S

Send Your Business Direct to Washington ∴ ∴
∴ ∴ Saves Time and Insures Better Service.

Caveats,
Trade Marks,
Copyrights
and
Designs.

My office is close to U. S. Patent Office. FREE report as to patentability made. Personal attention given—TWENTY-FIVE YEARS PRACTICE. Book "How to Obtain Patents," etc., sent free. Patents procured through E. G. Siggers receive special notice, without charge, in the—

INVENTIVE AGE

Illustrated Monthly—Seventeenth Year.
Terms, \$1.00 a Year.

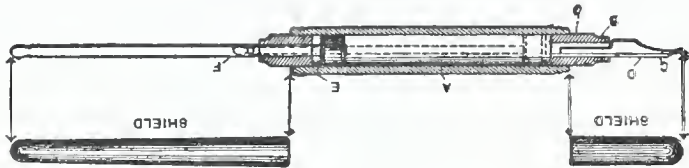
E. G. SIGGERS, 918 F STREET, N. W.,
WASHINGTON, D. C.

Look At Our Unprecedented Premium Offers !
To Old And New Subscribers Alike.

The "POST" SELF-FILLING AND CLEANING FOUNTAIN PEN.

No Filler. No Soiled Fingers. No Lost Time. Simple and Perfect.

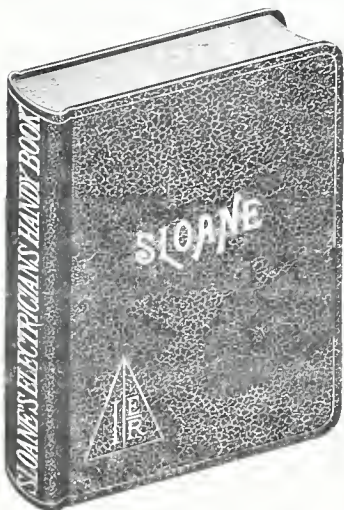
THIS IS ITS CONSTRUCTION.



Price \$2.00.

Including one year's subscription to

The INVENTIVE AGE AND PATENT INDEX



ELECTRICIAN'S HANDY BOOK

By T. O'CONOR SLOANE,
A.M., E.M., PH.D.

Handsomely Bound in Red Leather,
with Titles and Edges in Gold.
Pocket Book Style.

800 Pages. 500 Illustrations.
Price \$3 50.

Including one year's subscription to

The INVENTIVE AGE & PATENT INDEX.

Appleton's Cyclopedia of Applied Mechanics

Edited by PARK BENJAMIN, Ph.D., LL.B.
A Magnificent Set in Three Volumes Fully Illustrated.



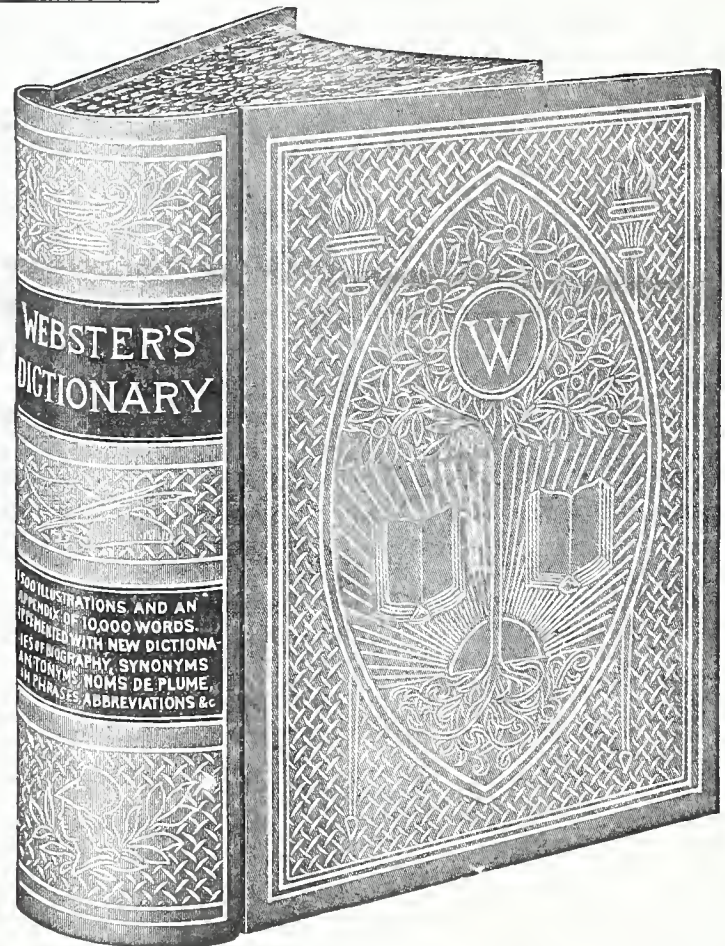
EACH VOLUME 10 x 7 x 2 INCHES. WEIGHT 20 LBS.

SPECIAL PRICE \$12.

Including one year's subscription to The Inventive
Age & Patent Index.

SEND FOR OUR FREE CATALOGUE OF BOOKS FOR INVENTORS,
AND MECHANICS.

Address: THE INVENTIVE AGE PUBL'G CO., 918 F St., Washington, D. C.



1540 Pages: 1500 Illustrations: Full Library Sheep
Binding: Dennison's Patent Index: Size, 4 x 9 x 10
Inches: Weight eight pounds.

Price \$2.50

With one year's subscription to
The Inventive Age & Patent Index.

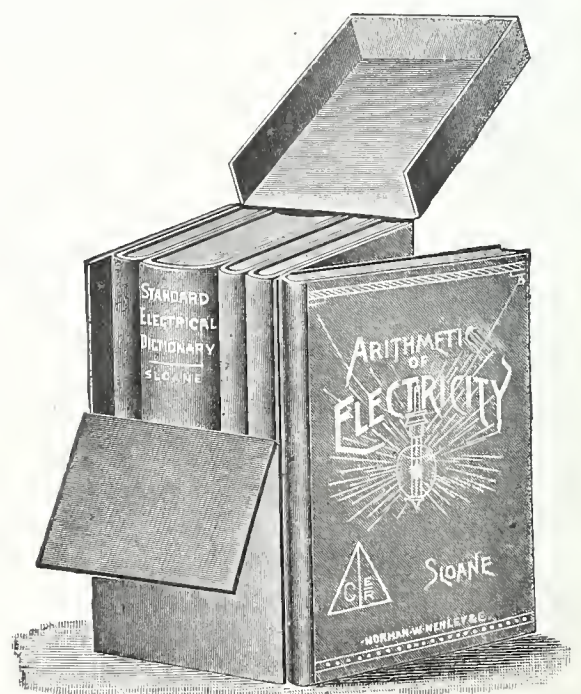
...A...

Complete Electrical Library

By PROF. T. O'CONOR SLOANE.

5 Volumes,
1300 Pages,
Over 450
Illustrations.

A \$7.00
Library for
\$6.00,
Including
one year's
subscription
to



The Inventive Age & Patent Index.

A JOURNAL
OF MANUFACTURING
INDUSTRY

THE Inventive Age

AND SCIENTIFIC PROGRESS.

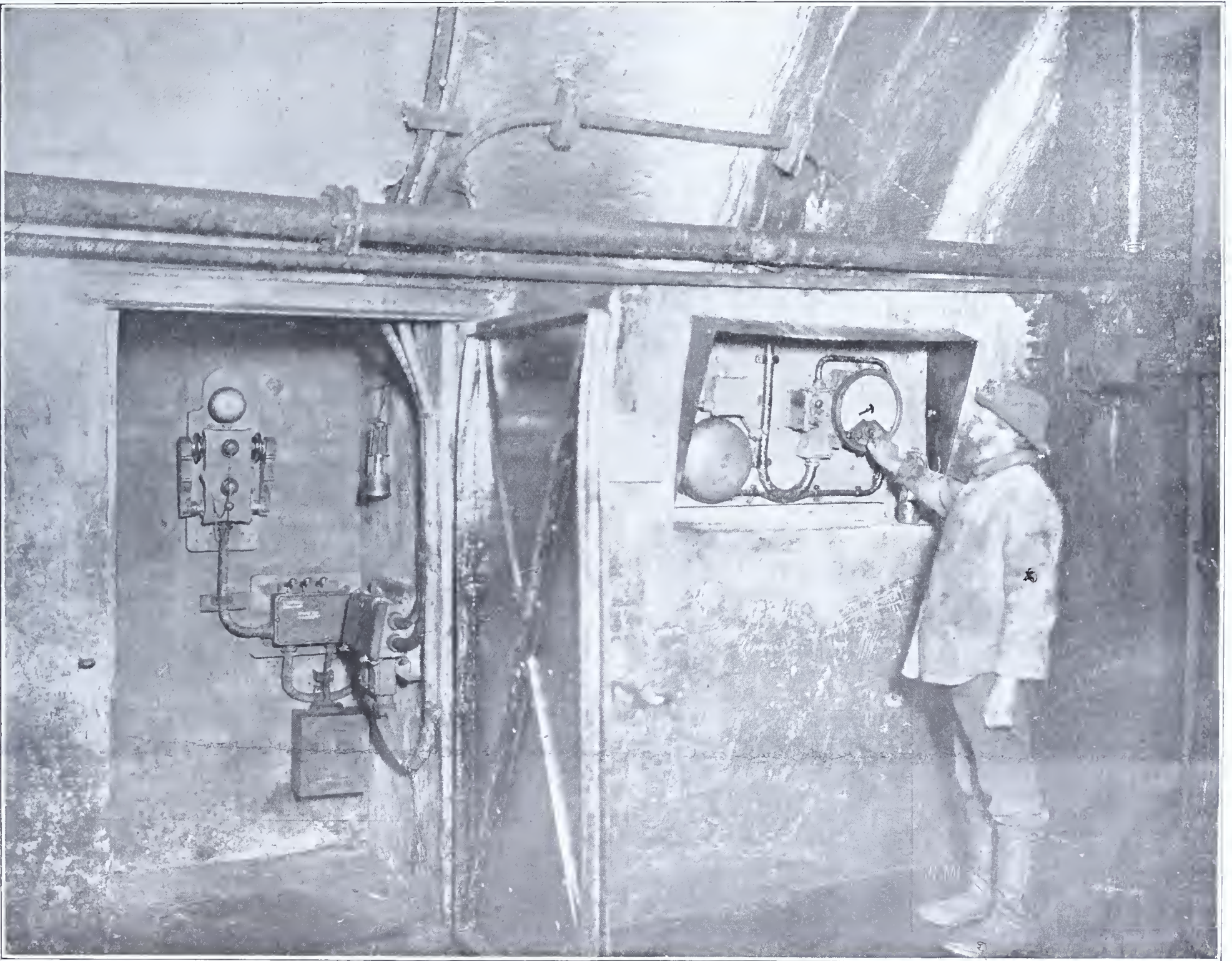
SEVENTEENTH YEAR, }
No. 10.

WASHINGTON, D. C.---OCTOBER, 1905.

Single Copies 10 CENTS.
One Dollar a Year.

THE MINE TELEGRAPH.

By L. RAMAKERS.



VIEW OF THE TELEGRAPH ARRANGEMENT IN A MINE.

TO no department of industry has electricity been more valuable than to those who delve in the bowels of the earth. The lightening of mines by electricity, thus obviating the use of the miner's lamp, with its ever-present danger, has conferred an inestimable boon on those who work in darkness; the electric motor has taken the place of the patient mule; and for pumps, hoisting engines, and in countless other ways, electricity finds application. Not the

least important is the signal system, which has replaced the simple bell signal formerly in vogue. A permanent optical signal has shown itself preferable to a passing acoustic device, that is quickly lost to the senses. In many cases, it is desirable for the purpose of greater safety to combine in a signal both acoustic and optical properties, so that the bell only serves to give notice that a command is being given. All these requirements are fulfilled by the

electrical long distance signals, which, in addition to being used as a mine telegraph, are also adapted for employment on board of ships.

The installation consists, in its simplest form, of two apparatuses, viz., a transmitter for the sending of signals, and a receiver which shows the signal that has been sent. For mining purposes, as a rule, there are three points which should be kept in close touch with each other—the level, the pit mouth, and the hoisting engine.

The various signals are painted on a circular dial, above which a revolving pointer is made to move. The transmission of orders is accomplished by means of a crank placed in front of the apparatus, and turned until the pointer of the transmitter stands directly over the signal word that is to be sent. The pointer of the receiver is moved simultaneously over the same word. Each pointer is operated by a small motor which is actuated when the crank is turned, thereby effecting a contact and causing the electric current to flow through it. The pointer motor and contact device therefore constitute the principal parts of a complete signalling apparatus.

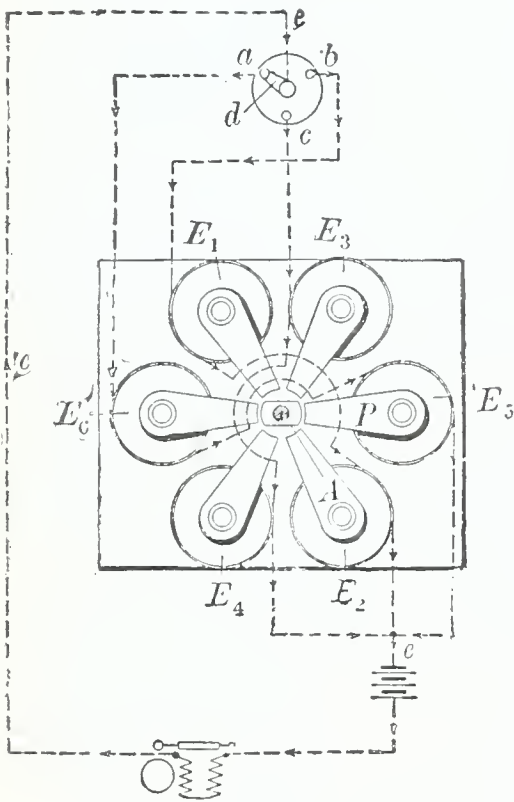


FIG. 1.

The pointer motor, also called the six spool system, is shown in Figs. 1 and 2, and consists of six electromagnetic spools E^1 to E^6 , placed in a circle at an angle of 60 degrees towards each other on one base plate. The iron cores of each of these spools P^1 are arranged radially both at their upper and lower ends, between which the anchor A can turn on its axis parallel to the magnet cores; both anchors being fixed on the same axis.

Each pair of diametrically opposite electromagnets are so arranged that they face different poles on their upper as well as their lower ends. The ends of the winding of each of these three pairs of spools are connected on the one side with one of the contacts *a*, *b*, *c*, of the current producer, and on the other side to a common return wire *e*, leading to the source of current. The second pole of the source of current is connected with the turning point of the contact

lever d . If this is placed, as shown in figure 1, on the contact a , then the current passes through the system in the direction shown by the arrow: the electromagnets E^5 , E^6 are actuated, and between their pole shoes a strong

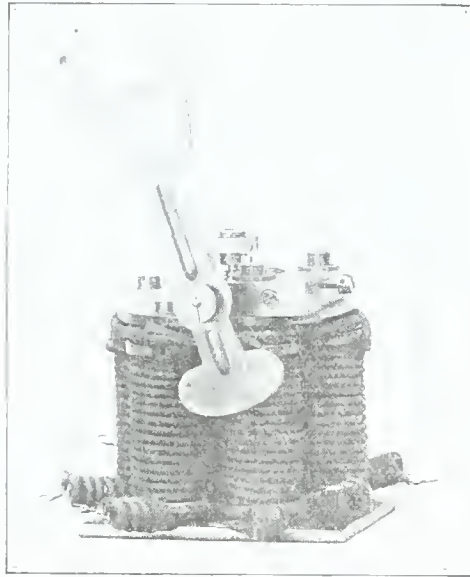


FIG. 2.

magnetic field is produced, and the anchors *A* place themselves in the direction of the line of the poles. If the contact lever is moved in the direction of the pointer, it causes the iron cores of the pairs of spools to successively become magnetic. The field revolves in the direction of the pointer and the anchors *A* follow this rotary motion, inasmuch as they place themselves in the line of the pole connection of the spool pair with every contact. It is self-evident that the direction of movement of the anchors is reversed, as soon as the slide lever *d* is moved in an opposite direction. This manner of transmission offers the advantage that any desired number of revolutions can be made, and therefore any desired number of signals can be transmitted with the same number of wires, without the exactness of the adjustment suffering in any way. A further advantage consists in the fact that the pointer is instantly held fast without vibrating, so that there will always be an instantaneous fixed indication of signals without vibration, even during the most rapid working of the apparatus.

The contact device, which serves to send the electric current to the electromagnets of the pointer motor, is a slide contact, which consists of two concentric metal rings, see figure 3.

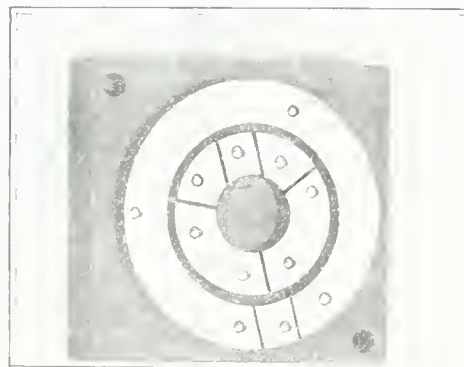


FIG. 3.

These rings are insulated from each other and are fastened on one base plate and electrically connected with the circuit by means of a rotating slide bridge consisting of a lever with unequal arms. The slide bridge, which

also consists of hard metal, is pressed against the rings by means of a spring and is fastened at the end of an axis which is turned by means of a crank. See figure 4.

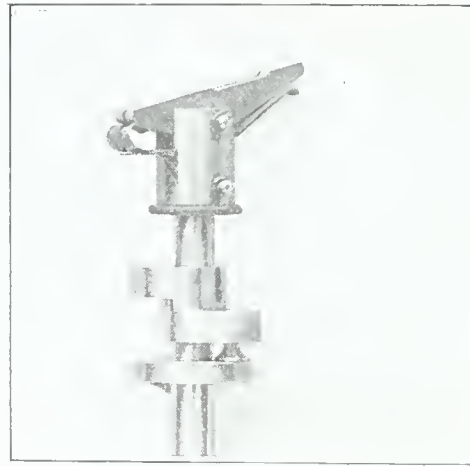


FIG. 4.

The inner part of both contact rings consists of three rings insulated from each other, one of which is divided, so that the small middle segment remains without current and forms the rest contact: each of the three contacts is connected with a pair of spools of the pointer motor, corresponding to the contacts a, b, c . in figure 1. while on the outer ring the general current wire e (shown in the same illustration) is supposed to be connected. The outer ring also has a rest contact, which is diametrically opposite that of the inner ring.

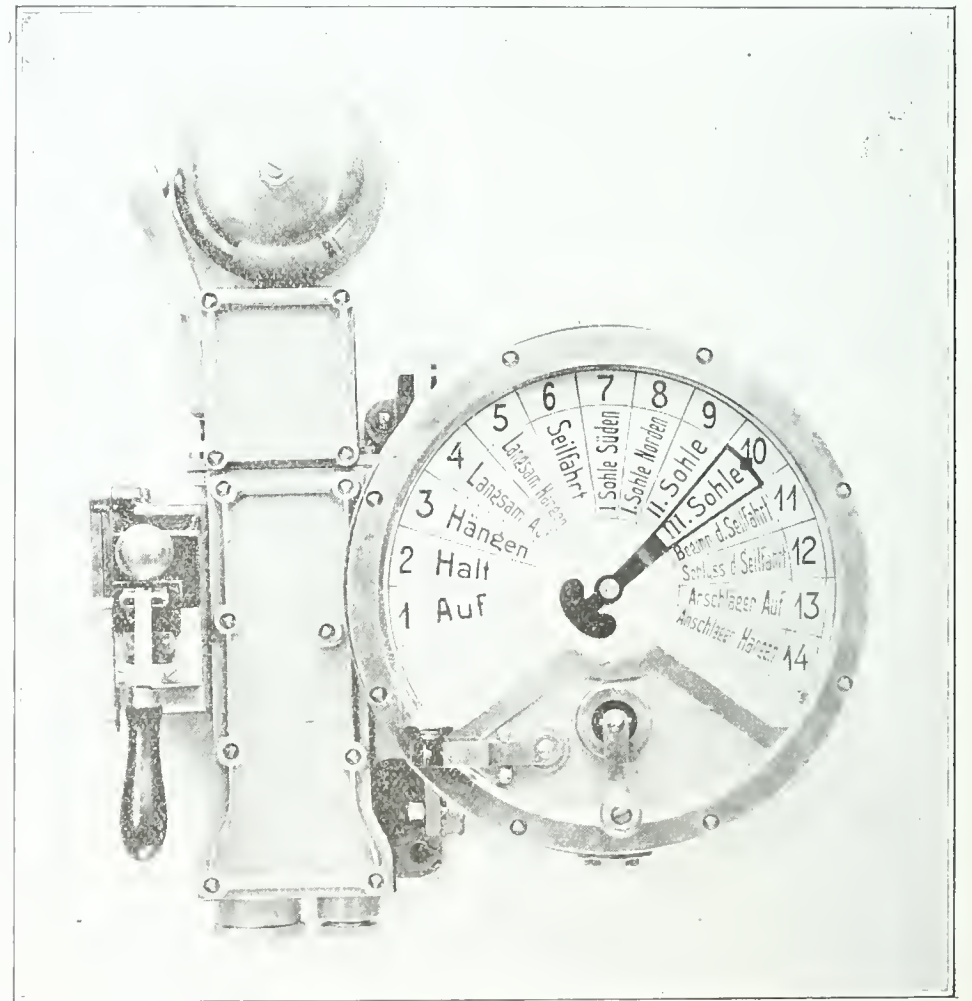


FIG. 5.

Every complete turn of the crank, by making contact three times, moves the pointer forward one field of the scale. During the position of rest of the apparatus, the two ends of the sliding bridge remain on that part of the contact ring which is without current, so that the current is always broken at the two poles: and the current only passes through the apparatus during the time when an order is being transmitted.

A safe and automatic adjustment of the slide bridge is produced in the position of rest by means of two levers, under the strong pressure of a spring, which works by means of an eccentric placed on the crank axis.

The parts described are placed in a cylindrical cast iron box, which is both water and gas-tight, and is usually fixed to the wall. The pointer motor and the ground plate of the current producer with the contact rings are fastened on the bottom of the box, while the crank axis with the sliding bridge is fastened on the underside of the waterproof cover of the box. (Fig. 5 and 6).

The scales are usually made of sheet brass, and are lighted from the outside; when necessary they can be illuminated from the interior by means of an incandescent lamp, in which case the scale is painted on alabaster glass.

For the connections of the cables containing the conducting wires, and for the distribution and connection of the different cores, a cable box is fastened to the side of the case, into which the conducting cable is led through a water-proof packing box. If for any reason the apparatus could not be fixed to the wall, then the case is fixed on a pillar (figure 7.) The cable box in such cases is placed between the top of the pillar and the case containing the apparatus, the

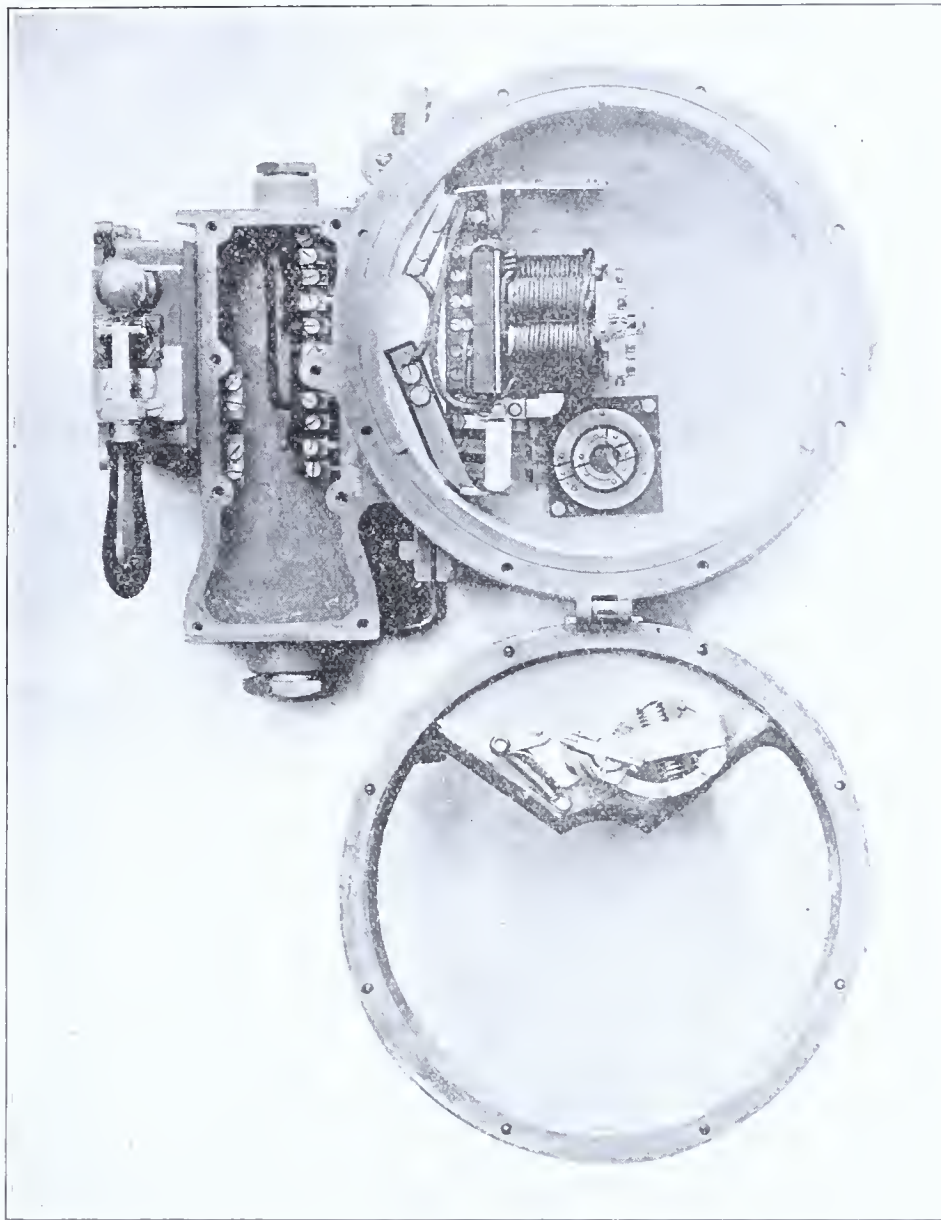


FIG. 6.

As a current source, batteries can be used, as the apparatus are usually operated with working current. If, however, direct current is at command, the working current can be used for the apparatus by inserting a suitable resistance. For the conduc-

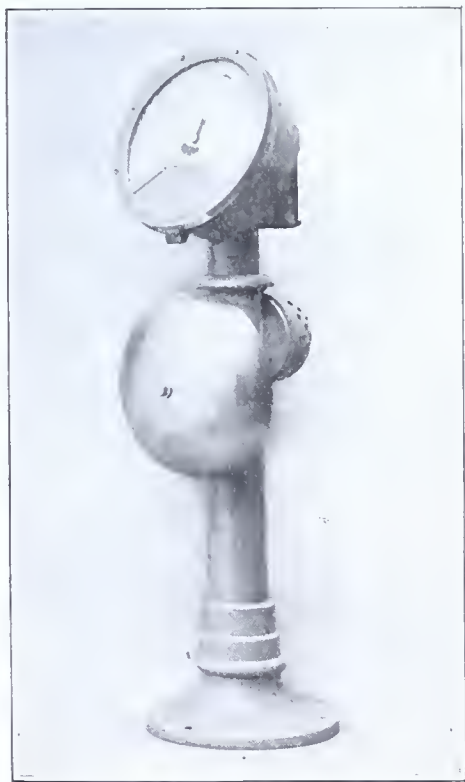


FIG. 7.

ing wires, lead-cased India-Rubber Cable, containing several cores, is generally used.

The possibilities of switching, in the use of the mine telegraph, are many; and it is this great possibility of changes and its adaptation to special conditions that forms the great advantage

of this system. Figure 9 shows the arrangement of a connection, consisting of three or more stations, in which signal orders can be sent from any one to all of the other stations. For establishing the connection, without considering the number of apparatus, eight wires are necessary. The apparatus, which are all similar to each other, consist of a pointer motor M , with magnetic spools r^1 to r^6 , the contact device K with the contacts c, c^1, c^2, c^3 , and the alarm bell W . The

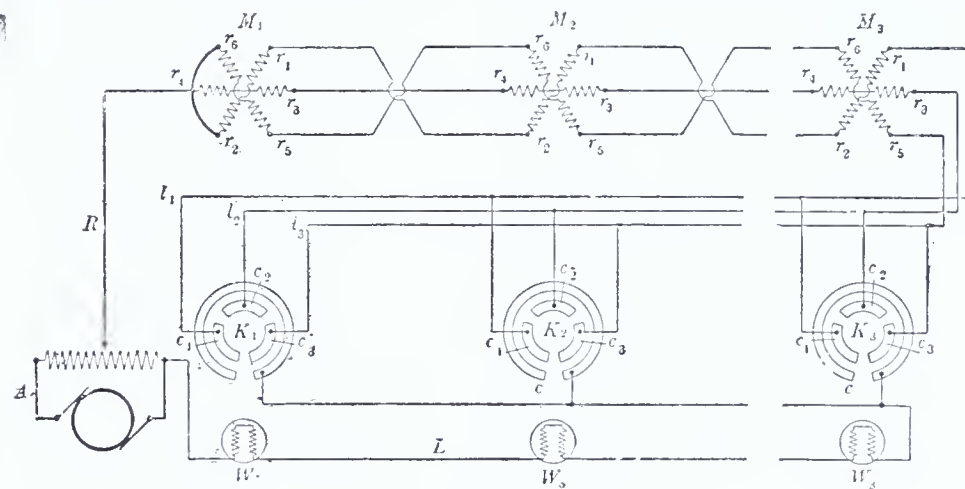


FIG. 9.

working current is taken from a resistance A , inserted in the heavy current circuit. If, for example, in the first apparatus the crank is turned, then the outer contact ring c , to which the current is connected by means of the slide bridge, is successively connected with c^1, c^2, c^3 . If the bridge lies over c and c^1 the following current is closed: Resistance A over the wire L and the alarm W^1, W^2, W^3 , to the contact c , then to the contact device K^1 ,

sliding bridge contact c^1 , wire L , pair of spools r^1, r^2 of the pointer motors M^1, M^2, M^3 to the general return wire R back to the resistance A . Similar currents are produced when the slide bridge lies over c^2, c^3 . As a consequence, when an order is sent, the

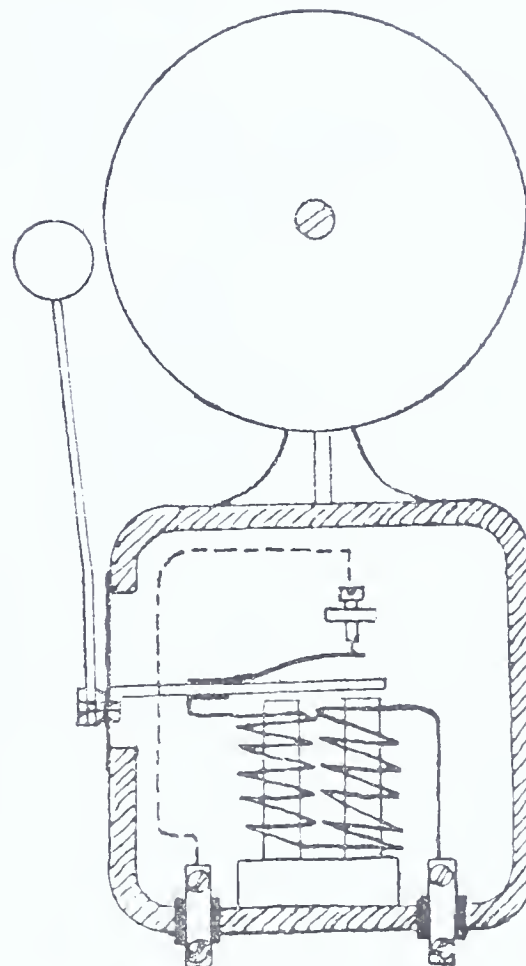


FIG. 8.

pointers of all apparatus, together with the alarm bells, are set in operation. Besides this connecting arrangement, several others are in use, all based on the same principle: their installation depending on the location of the mining districts where they are installed. The handling of all installations as well as the working of the apparatus is exceedingly simple. No special instruction need be given the men who handle the apparatus, as the latter is manipulated simply by turn-

Destructive Terebo.

METHODS TO GUARD TIMBER AGAINST THE TEREBO.

Consul L. E. Dudley, of Vancouver, British Columbia, writes:

In May, I contributed a note regarding a new coating for piles to protect them against the terebo. I subsequently learned that the machinery for doing this work had not been fully perfected and that the company was not in a position to undertake contracts. Many inquiries came to me from different sections of the United States, but the manager was unable to reply at the time. Now the machinery has been perfected, the plant is in working order, and the manager has written to all inquirers, giving particulars.

I was present with many others when the plant first began operations. Of course the employees were all new men, unaccustomed to the peculiar work, and yet I saw 40 feet of a pile covered with this new coating in fourteen minutes. The pile was immediately rolled overboard into the water, and as soon as possible was hauled up on the skidway, and the coating had hardened in the few minutes of immersion in the cold salt water, so that when struck with a heavy hammer it would ring like a bell.

The machinery for doing this work has been invented and specially constructed, and, while it seems very simple, it is undoubtedly the result of long, patient thinking, many experiments, and much experience. The machinery is so constructed that the pile as it moves forward turns. The coating is in a tank below the log, heated to boiling point. A web of fabric about 10 inches wide, after being immersed in this liquid preparation, is wound spirally around the log, one thickness following another, and carrying with it a sufficient quantity of the preparation to make a very thick coating. A heavy galvanized-iron wire follows the winding of the fabric under great tension, so that it binds the coating tightly to the logs whether they be wet or dry. The preparation consists of asphaltum, slaked lime, hydraulic cement, brimstone, crude creosote, asbestos, and sharp sand or granite rock crushed to a sufficient degree of fineness. After an application of the coating the log passes in front of a machine in which comminuted rock or fine sand, highly heated, is blown upon the coated pile, making a solid outer surface. This preparation being applied at a very high temperature penetrates the wood to a considerable depth, so that it will act in a large measure as a preservative.

I saw the pile pounded with a heavy hammer many times without in any way injuring its coating. I am told that a pile thus coated has been driven with a hammer weighing 3,200 pounds, with a 15-foot drop, without in any way injuring the coating. I am satisfied, from what I have seen, that this preparation will not be injured by driving nor by the rafting of piles that have been coated.

From the numerous inquiries I have received in response to the former note contributed to Consular Reports I know that some substantial coating of this kind is very much needed, and this preparation seems the best that I have seen. The inventor has formed a local company to supply coated piles to the railways, builders of wharves, and others in this province. What is to be done about exploiting this patent in the United States and other countries, has not yet been settled. It appears to me that it will not be possible to coat piles here and ship them long distances on account of the expense, and that ultimately plants must be erected wherever piles coated under the patents of the inventor are to be used. The result probably will be the establishment of plants in the United States and other countries. The inventor of the process, who is manager of the local company, will give further information to all persons who may request him to do so.

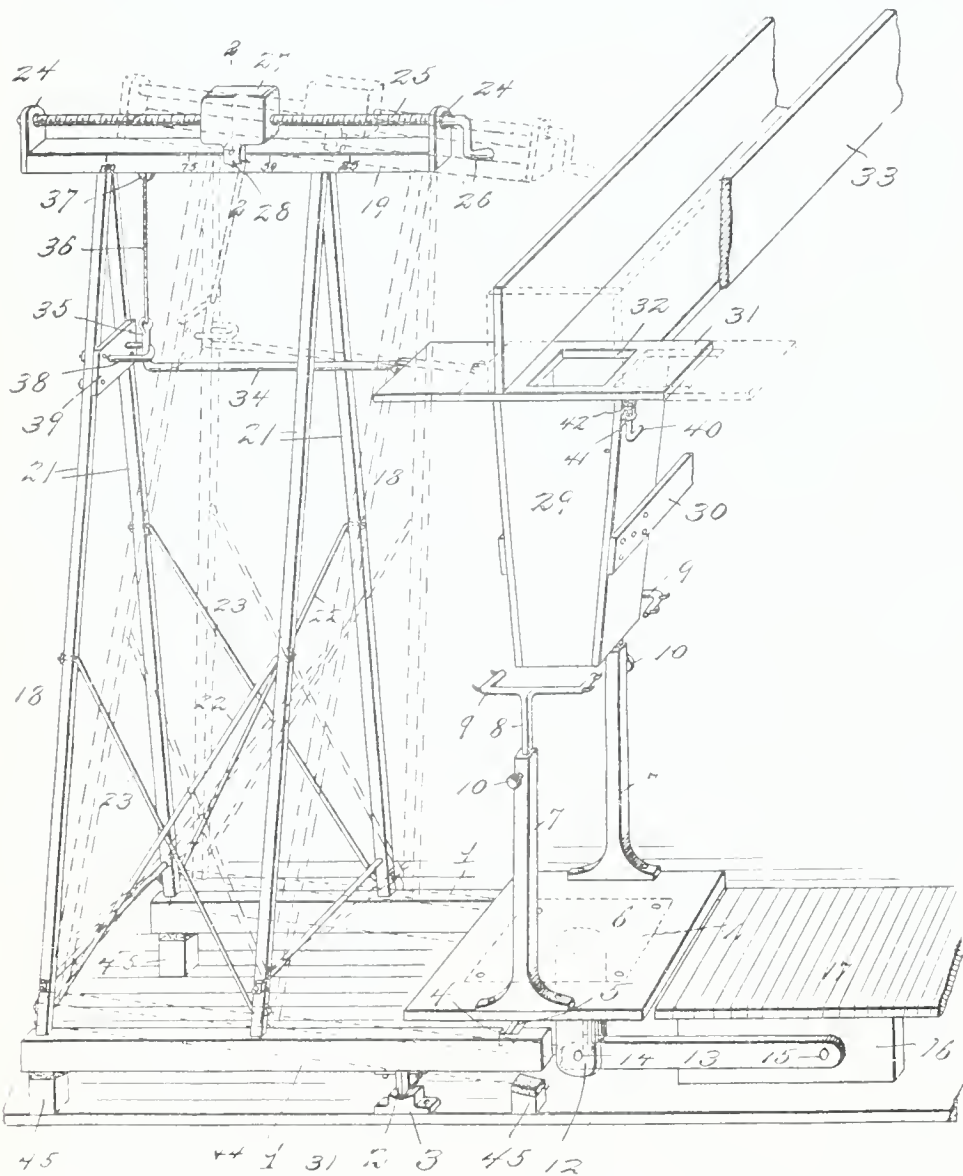
THE INVENTIVE AGE contains sound advice to inventors and patentees. For lack of such advice many have lost money. Subscription, one dollar a year.

CLEVER NEW PATENTS.

GRAIN WEIGHING AND BAGGING SCALE—CAR TRUCK AND BRAKE—VEHICLE THILL.

Grain Weighing and Bagging Scale.

An exceedingly ingenious grain weighing and bagging scale has been invented by Mr. August G. H. Bostelmann, of Fair Oaks, Arkansas.—The primary object of the invention is to provide means of a positive nature, whereby the weight of the grain, or other material fed to a sack effects the tilting of a scale beam, this tilting movement being utilized to cut off the feed of material to the bag when the exact amount has been weighed. A perspective view of one form of the apparatus is herewith disclosed. The bag holder 7 is supported upon a movable platform 6, carried by tilting scale beams 1. The material is fed to the bag from a chute 33, through a hopper 29, communication between the chute and hopper being controlled by a sliding valve 31, having an opening 32. This valve is connected by a link 34 to an upstanding frame 18, mounted upon opposite ends of the scale beams, to the ends carrying the bag holder. An adjustable counterweight 27 is carried by the upper end of the frame, and has suitable means for moving it toward and from the fulcrum of the beams. It will be clear from the illustration that, when the frame is in the position shown in full lines, the opening 32 of the



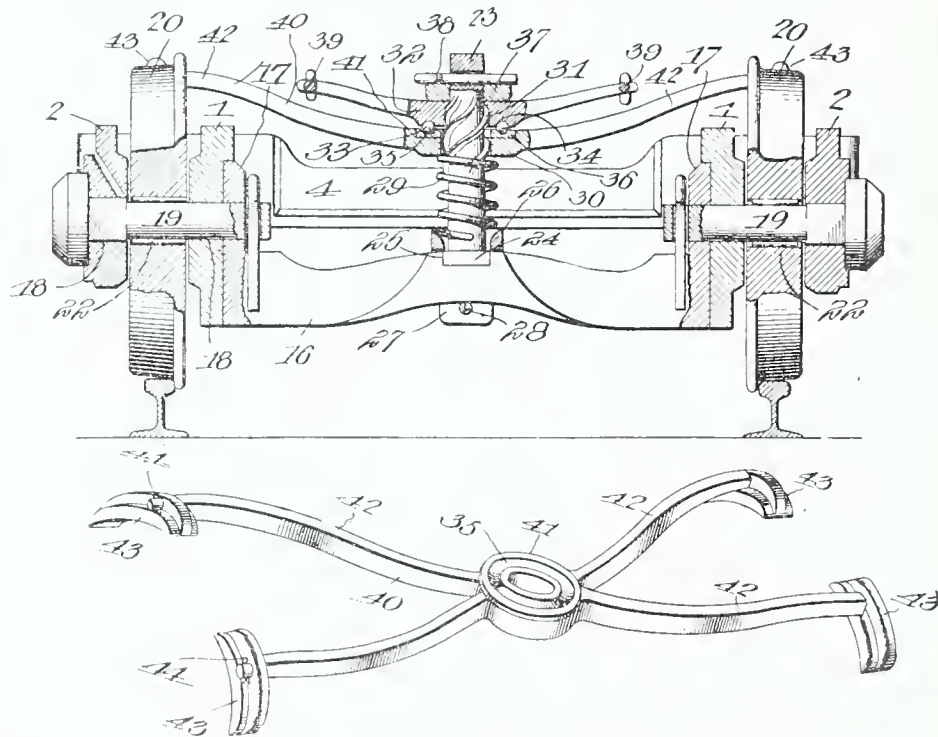
valve will align with the chute and hopper, and consequently, grain or other material flowing down the chute will pass through the hopper and enter a bag suspended by the holders. As soon as the proper weight of material, which is governed by the counterweight 27, is within the bag, the beams will, of course, be tilted, thus throwing the frame to the position shown in dotted lines and moving the slide to carry the opening out of the chute, thus cutting off communication between the same and the hopper. The parts are held in this position by a spring latch 41. The filled bag can then be removed and emptied. When placed in position, the latch is released and the parts will reassume their original position.

By disposing the counterweight at a place some distance above that of the cut-off, the force of the thrust of the rod or connection 34 is increased, on the same principle that a long lever is more powerful in its lifting action than a short lever, and by this disposition of the counterweight, positive actuation of the cut-off is secured.

Car Truck and Brake.

An invention that is certainly a distinct departure in its line is a car-brake designed by Mr. Gustave Rouy, of St. Louis, Mo. A sectional view of a car truck having the brake, together with a perspective view of the brake beam, is herewith shown. The object of the invention is to effect braking of car-

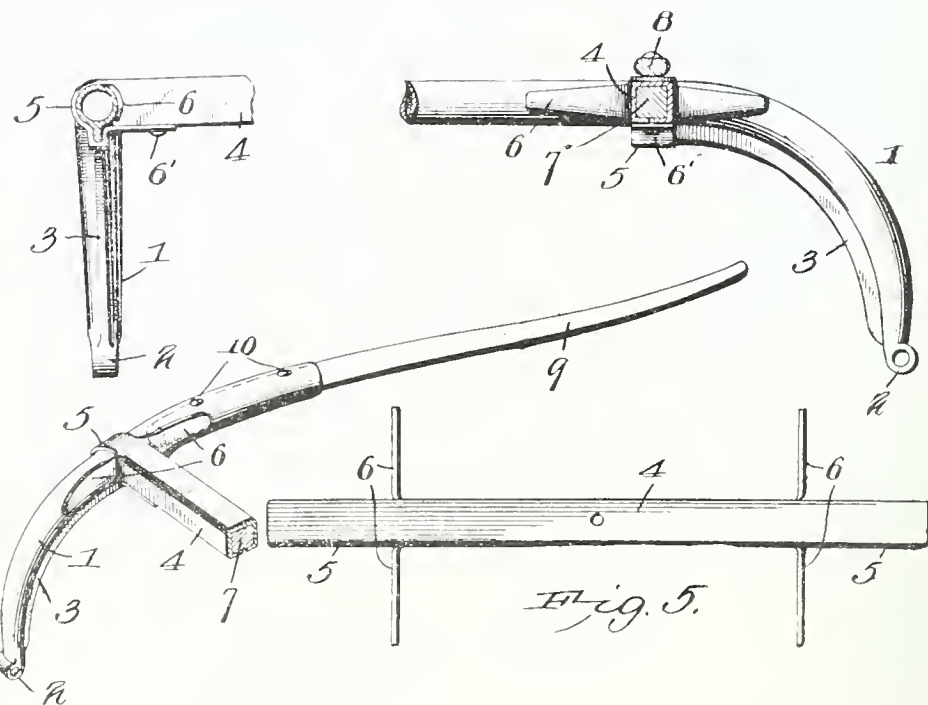
wheels in such manner as to insure stoppage of the train in the shortest possible time: and furthermore, to so dispose the brake-shoes as to cause them to exert the most effective pressure upon the car-wheels. The car truck which is of novel construction has upstanding posts 23, arranged between the wheels, and provided with screw threads 31. Slidably mounted on these posts and therefore vertically movable, are brake beams comprising spiders 40, having outstanding arms 42, on the outer ends of which are pivoted brake shoes 43 that bear upon opposite sides of the wheels. Mounted on the posts and engaged with the screw threads are actuating nuts 32, preferably having ball



bearings with the beams. These nuts are provided with outstanding arms, to which the operating mechanism is connected, as shown at 39. It will be apparent that, when the said operating mechanism is actuated, the nuts will be turned and consequently the brake beams will be moved down upon the wheels. When the nuts are moved in the opposite directions springs 29, disposed beneath the beams, elevate the same and release the wheels.

Vehicle Thill.

A patent of decided interest to manufacturers of vehicles has been granted to Mr. Lurline C. Sweet, of Loami, Ill., who has assigned a one-half interest in the same to Mr. Charles Wyckoff, of the same place. The object in view is to provide a strong and much more effective thill at less cost than the well known wooden structure of this character. The new thills may be constructed wholly of tubular metal, or in part of metal and wood, and a structure of the latter nature is shown in the illustration. The curved or rear portion 1 of each thill constitutes a socket member, receiving the shaft 9. This



curved portion has at its rear end a thill coupling 2, and is reinforced by a longitudinal rib or flange 3. The cross bar 4 is a tubular metal structure, preferably, though not necessarily, rectangular in cross section, and having oppositely extending wings 6, brazed or otherwise secured to the inner sides of the thill members. The cross bar may be constructed wholly of metal, but it is preferable to employ a wooden fiber bar 7, which bar reinforces the cross bar and may be of inexpensive material.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

H. C. COOK CO. v. LITTLE RIVER MFG. CO.

(Circuit Court, D. Connecticut. March 31, 1905.)

PATENTS—INFRINGEMENT—NAIL CLIPPERS.

The Wenger patent, No. 569,903, for finger-nail clippers, construed, and held not infringed.

SELF-SEALING CAN CO. v. HOCKER.

(Circuit Court, E. D. Pennsylvania. March 30, 1905.)

1. PATENTS—INVENTION—COMBINATION OF OLD ELEMENTS.

Merely bringing together old devices in a combination in which each performs its old function, without producing any new result by reason of the combination, is not invention.

2. SAME—CAN TOPS AND COVERS.

The Spencer patent, No. 412,134, for a can top and cover, is void for lack of invention, in view of the prior art.

UNIVERSAL TALKING MACH. CO. v.

KEEN et al.

(Circuit Court, E. D. Pennsylvania. March 24, 1905.)

CONTEMPT OF COURT—VIOLATION OF INJUNCTION—EVIDENCE CONSIDERED.

Evidence considered, and held to establish a contempt of court by defendants by selling and offering for sale large numbers of talking machine records, which they had on hand at the time of the granting and service of a preliminary injunction restraining such sale, and in violation of such injunction.

G. & C. MERRIAM CO. v. STRAUS et al.

(Circuit Court, S. D. New York. December 9, 1904.)

1. UNFAIR COMPETITION—INJUNCTION—PLEA.

The plea to a bill for injunction presenting a case of unfair competition in trade, arising from the manner in which defendants have used the word "Webster's" to lead the public to believe their dictionaries are those manufactured by complainants, is insufficient, it not denying explicitly the averments that the term when used on such dictionaries had acquired a meaning in the trade and with the public as signifying editions which were the product of complainants, and that defendants have used the word without any qualifying descriptive matter tending to show that their dictionaries are not the product of complainants; as, if such averments are true, the word has acquired a secondary meaning, and complainants are entitled to protection against the misleading use of it, though any publishers, by reason of the expiration of the copyright on the literary, are at liberty to use the word in a manner which distinguishes their dictionaries from those of complainants.

2. SAME—COPYING CHARACTERISTICS.

The principles which interdict unfair competition in trade will protect a publisher who has imparted to his books peculiar characteristics, which enable the public to distinguish them from books published by others and containing the same literary matter, against the copying of the characteristics, though the copyright on the literary matter has expired.

3. SAME—PLEAS—SUBSTITUTE FOR ANSWER.

A plea to a bill for unfair competition which amounts substantially to a denial, with an allegation of evidential facts to disprove the charges of the bill, is improper, an answer being sufficient.

GEORGE FROST CO. et al. v. KORA CO.

et al.

(Circuit Court, S. D. New York. December 21, 1904.)

1. INFRINGEMENT OF PATENTS—USE OF ARTICLE BY PURCHASER.

It is not an infringement of a patent for clasps for one, purchasing in open market clasps sold without restriction as to use, to detach them from a cord to which they were attached, and attach them to supporters, to manufacture which both parties were licensed.

2. SAME—AFFIRMATIVE RELIEF TO DEFENDANT.

Defendant in an infringement suit cannot

have affirmative relief therein for unfair competition, a separate and distinct cause of action.

3. UNFAIR COMPETITION—INJUNCTION.

The writing of a single letter by one manufacturer to a customer of another manufacturer, stating that the latter manufacturer is infringing a patent, and that any one purchasing from him would be held as an infringer, is not sufficient proof of unfair competition to warrant a preliminary injunction.

WESTON ELECTRICAL INSTRUMENT

CO. v. EMPIRE ELECTRICAL INSTRUMENT CO. et al.

(Circuit Court of Appeals, Second Circuit. March 8, 1905.)

1. PATENTS—RENEWAL APPLICATION IN CASE OF FAILURE TO PAY FEES—TIME FOR FILING.

Under Rev. St. § 4897 [U. S. Comp. St. 1901, p. 3386], the Commissioner of Patents is without authority of law to issue a patent on an application filed more than two years after the allowance of a patent for the same invention on a prior application by the same party, which has been forfeited for non-payment of fees.

NEW YORK PHONOGRAPH CO. v.

EDISON et al.

(Circuit Court, S. D. New York. January 5, 1905. On Rehearing, April 20, 1905.)

1. PATENTS—LICENSES TO SELL AND USE—TRANSFER OF PATENT—DEFECT.

Where a corporation owning patents, subject to licenses granted to sell and use, became insolvent, and its assets were purchased at a receiver's sale by E., who had full knowledge of the rights of the licensee, and he thereafter organized another corporation, to which he conveyed the assets of the former company so purchased, excepting the rights of the insolvent under the licenses, which he transferred to a trusted employee, the succeeding corporation, taking with full knowledge of the licenses, was bound thereby.

2. SAME—ABANDONMENT—INSOLVENCY.

Where an exclusive license, within specified territory, to use and sell patented phonographs and graphophones, authorized the licensor, on written notice, to immediately terminate all the rights granted, on the licensee's failure to perform certain conditions, and in the event of the licensee becoming bankrupt or insolvent, the licensee's insolvency did not operate as an abandonment of its contract rights, in the absence of notice, it being willing and capable of fulfilling its contract obligations notwithstanding such insolvency.

HILLS & CO., Limited, v. HOOVER et al.

(Circuit Court, E. D. Pennsylvania. March 30, 1905.)

COPYRIGHT—PICTURES—"PRINTS."

Pictures printed in successive colors from metal plates from which parts have been cut out so as to leave portions of the print in relief are entitled to copyright as "prints," under the general enumeration of Rev. St. § 4956 [U. S. Comp. St. 1901, p. 3407], and are not within the proviso requiring chromos or lithographs to be printed from "drawings on stone made within the limits of the United States, or from transfers made therefrom," to be entitled to copyright.

BATES MACH. CO. v. WETTER NUM-

BERING MACH. CO.

(Circuit Court, E. D. New York. April 12, 1905.)

PATENTS—INVENTION—NUMBERING MACHINES.

The Chines patent, No. 676,084, for an automatic typographic numbering machine, claim 27, which covers a box or case for such machine, in which the side plates are interchangeable, and held in place entirely by pins instead of screws, as in the prior art, rendering them easy to remove and replace, was not anticipated, and shows invention. Also held infringed.

RIES et al. v. BARTH MFG. CO.

(Circuit Court of Appeals, Seventh Circuit. January 3, 1905.)

1. PATENTS—INFRINGEMENT—EFFECT TO BE GIVEN TO LATER PATENT.

Where a complainant patentee has accomplished a new result by a new means, a defendant cannot escape the charge of infringement by showing a later patent. Whether the defendant devised an independent means for accomplishing the same result, or merely added supplementary devices or improved details of the primary in-

vention, using the same principles of operation, is a question to be determined from the proofs; there being no presumption either way.

2. SAME—CIRCUIT CLOSING APPARATUS.

The Ries patent, No. 356,963, for an electric circuit closing apparatus, the general purpose of which is to secure the application of the actuating current gradually, with continuously increasing strength, to avoid injury to the parts from sudden strain, covers an invention of a primary character, which embodies a new combination of old devices to accomplish an entirely new result; and its claims are entitled to a broad construction in accordance with their terms, covering any similar combination of equivalent devices. Claims 4, 7, and 9 held infringed by the apparatus of the Dillon patent, No. 676,426.

ATWOOD-MORRISON CO. v. SIPP ELEC-

TRIC & MACHINE CO.

(Circuit Court, D. New Jersey. May 1, 1905.)

1. PATENTS—EVIDENCE OF PATENTABILITY.

The issuance of a patent is of itself evidence of the patentability, usefulness, and novelty of a device.

2. SAME—EVIDENCE OF PRIOR USE.

Evidence of prior use, to overcome the presumption of validity of a patent, must be clear and convincing in character and of weight sufficient to overcome every reasonable doubt.

RUMFORD CHEMICAL WORKS v. NEW

YORK BAKING POWDER CO. et al.

(Circuit Court, S. D. New York. January 3, 1905.)

PATENTS—CONTRIBUTORY INFRINGEMENT.

One who manufactures and sells an element in an infringing baking powder to be used by the purchaser in making such baking powder is a contributory infringer, and liable equally with the purchaser for the profits or damages resulting from the sale of the infringing article.

INTERNATIONAL SILVER COMPANY v.

RODGERS BROS. CUTLERY CO. et al.

(Circuit Court, W. D. Michigan, S. D. February, 17, 1905.)

TRADE-MARKS—UNLAWFUL COMPETITION—TRADE-NAMES.

Complainant's predecessors having created a large business in the manufacture and sale of tableware under the trade-names "Rogers Bros." "Rogers Cutlery Co.," and other names in which the word "Rogers" or "Rogers Bros." appeared, defendants organized a corporation for "buying, selling and dealing in cutlery and tableware at wholesale and retail," in which two of the original incorporators were named "Rodgers," and immediately placed on the market knives manufactured by an independent corporation, stamped, "Rodgers Bros. Cutlery Co." At this time neither the corporation nor the individuals composing it had any skill in manufacturing tableware, and no established business therein, and, had they eliminated the word "Rodgers" from their trade-mark, there would have been nothing to recommend their goods, other than the excellence of the product. Held, that defendants' use of such name was prima facie fraudulent, entitling complainant to a preliminary injunction.

HAYES-YOUNG TIE PLATE CO. v. ST.

LOUIS TRANSIT CO.

(Circuit Court of Appeals, Eighth Circuit. April 5, 1905.)

1. PATENT—ABANDONMENT OF APPLICATION AND OF INVENTION—PATENT ON SECOND APPLICATION.

An abandonment of an application for a patent is not necessarily an abandonment of the invention, and a patent may lawfully issue on a second application, although the first has been abandoned. In such a case the absence of prior use or sale of the invention for more than two years prior to the second application is indispensable to the validity of the patent.

2. SAME—SUBSEQUENT APPLICATIONS—CONTINUANCE OF ORIGINAL PROCEEDING.

In cases in which the original application has not been abandoned, subsequent applications and amendments constitute a continuance of the first proceeding, and the two years' public use or sale which may avoid the patent must be reckoned from the presentation of the first application, and not from the filing of subsequent applications or amendments.

AMERICAN CAN CO. v. HICKMOTT & S.

PARAGUS CANNING CO.

(Circuit Court, N. D. California, March 29, 1905.)

1. PATENTS—INFRINGEMENT—COMBINATION CLAIMS.

In a combination claim of a patent, every element specified by the patentee, either directly or by a reference to the specification, which carries such element into the claim, must be deemed material; and to constitute an infringement of such claim the infringing device must contain every one of its elements, or its equivalent.

2. SAME—EQUIVALENTS.

A device in one mechanism, to be the equivalent of the device in another, must perform the same function and perform it in substantially the same manner.

3. SAME—PIONEER INVENTIONS—IDENTITY OF MEANS.

To sustain a claim of infringement of a patented machine, three things must be found: First, identity of result; second, identity of means; third, identity of operation. The fact that an invention is of a primary character does not entitle the patentee to all means for accomplishing the same result.

McGILL v. WHITEHEAD & HOAG CO.

(Circuit Court, D. New Jersey. April 29, 1905.)

SAME—CONSTRUCTION OF CLAIMS—ESTOPPEL.

Where a patentee, with knowledge of a device made by defendant, made no claim of infringement for five years, he will be held estopped to thereafter place a different construction on his patent, just before its expiration, for the purpose of making out a case of infringement.

VON MUMM et al. v. STEINMETZ.

(Circuit Court, S. D. New York. January 9, 1905.)

UNFAIR COMPETITION—PRELIMINARY INJUNCTION.

Although unfair competition, by simulating the dress of complainants' goods, is apparently shown, a preliminary injunction will not be granted, where it appears that defendant has publicly used the same dress for many years.

AMERICAN MUTOSCOPE & BIOGRAPH

CO. v. EDISON MFG. CO.

(Circuit Court, D. New Jersey. May 6, 1905.)

1. SAME—SUBJECTS OF PROTECTION—PHOTOGRAPHS.

A photograph which is not only a light-written picture of some object, but also an expression of an idea, or thought, or conception of the one who takes it, is a "writing" within the constitutional sense, and a proper subject of copyright.

2. SAME.

A series of separate pictures printed on a positive film from a number of negatives taken by a camera, and designed for use in a moving picture machine, and which, taken together, tell a connected story, constitute a photograph, within the meaning of Rev. St. § 4952 [U. S. Comp. St. 1901, p. 3406] and may be the subject of a copyright, although in taking the negatives the camera was placed in different locations.

MALLON et al. v. WILLIAM C. GREGG &

CO. et al.

(Circuit Court of Appeals, Eighth Circuit. April 17, 1905.)

1. PATENTS FOR INVENTIONS—APPLICATION OF OLD DEVICE TO NEW USE NOT INVENTION.

The application of an old machine or combination to a new use is not in itself invention, or the subject of a patent.

It is only when the new use is so reconducible, or so remote from that to which the old device has been applied or for which it was conceived, that its application to the new use would not occur to the trained mind of the ordinary mechanic skilled in the art seeking to devise means to perform the desired function with the old machine or combination before him, that its conception rises to the dignity of invention.

2. SAME—APPLICATION OF ENDLESS CHAIN TO NEW USE OF RAKING SUGAR-CANE NOT INVENTION.

The conception of the application of an endless-chain rake which had been constructed and used to move ice, coal, hay, grain, lumber, and crushed sugar-cane to the new use of raking sugar-cane from a loaded car before it is crushed is not an exercise of inventive genius.

The Old Tent Compared With the New V. X. L. Portable Tent.

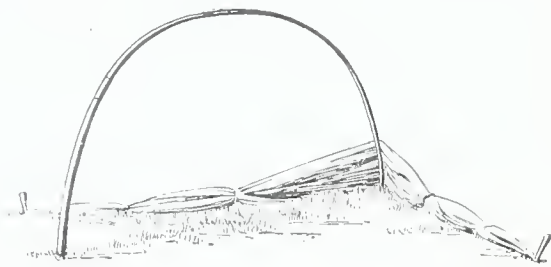
In the march of progress of the manufactures, the evolution of the tent has been, until within the past few years, comparatively slow, and to this day people who use a tent for either business or pleasure, are compelled to go to an inordinate amount of trouble with poles, pegs, ropes, etc. with the old fashioned tent, which even when thought to be secure against wind and weather, has a nasty trick of surprising the occupants by getting blown out, or blown down. What old camper has not spent one or more nights under the lee of a tree or bush on a gusty wet night, after his canvas has been literally torn from its fastenings?

Another fault was the time given to getting it ready, as also in pulling it down, sometimes on a breezy day "all hands and the cook" having to puff and struggle to get it down and folded.

Many attempts have been made at improving the tent, and many excellent devices have been utilized, but it remained for Mr. F. H. Gotsche, of 416 Hoffman Ave., San Francisco, Cal. to invent a tent, that is not only a practical and secure habitation, but its simplicity, utility and adaptability make it a boon to the tenter. A home for either long or short periods.

It is styled the improved portable V. X. L. tent, and is all—yes more than its name implies, it is a revelation in tent making.

The accompanying illustrations give at a glance an idea as to its convenience in construction and shape. The contour of the shape of the V. X. L. being the mainstay against bad weather.



The frame in position and tent properly pegged

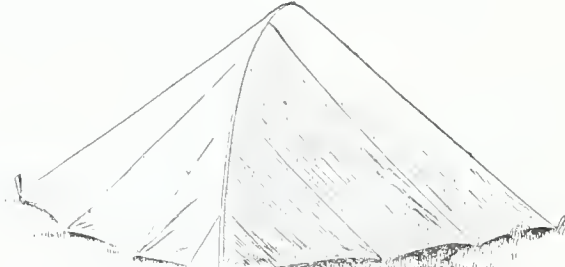


Tent upon frame ready to pull in direction desired

It follows that a tent of this make will stand in any breeze or gale, its lines in every direction capable of giving least resistance, hence security and stability. The occupants are safely ensconced, the wind rushing harmlessly over their heads, leaving them care free in their safe retreat.

To those whom necessity or desire force to frequent change of location, the new tent is of especial benefit, because of the ease of operation which characterizes the setting up, the taking down and folding away of the V. X. L.

The frame as shown in the first and second illustrations and is made up of four wooden sections. These frame sections are held together by metal socket pieces or couplings.

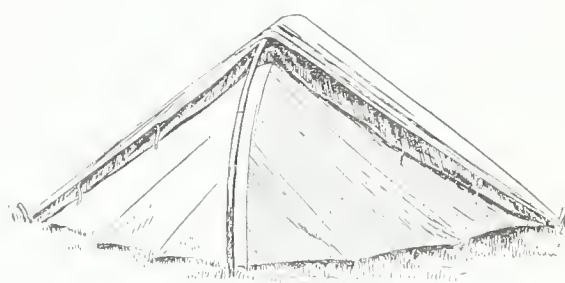


Full view of tent set up ready for occupancy

the cover is strapped to the middle of the frame, and thence drawn over the frame as shown in the illustration, and presto! There's your tent house.

In ordinary weather only two pegs are necessary; but when exposed to a strong wind, more pegs should be used.

An advantageous feature of the V. X. L. tent, not to be lightly passed on, is the fact, that a slightly larger tent can be set over one of smaller size without



Double tent—a perfect shelter from extreme heat or cold.

When ready to pitch the tent, this frame is drawn into a semicircle and the ends stuck about 6 inches into the ground, twice the distance apart as the tent is high.

For instance, in a tent 6 feet high the distance between the frame on the ground will be exactly 12 feet. The middle of

touching at any point: this leaving a complete compartment of air around the inner tent 6 to 13 inches deep. This complete air compartment serves as a perfect protection against either heat, cold or rain, affording the occupants as much comfort and shelter as that of a house.

PATENTS FOR EXPORTED ARTICLES.

Practical Advice to Manufacturers.

In a letter to the State Department, Consul-General Mason, contributes an article from Mr. Robert Grimshaw, of Hanover, Germany, on the importance of securing patents on articles imported into Germany, when such articles are patentable. The letter is so interesting and timely, that we print it below in full. It should serve to warn American exporters and manufacturers, and cause them to seek patent protection on their inventions before shipping the same to foreign countries.

"I have often had occasion to write American manufacturers and exporters on the subject of having what they have to sell in Europe patented in the countries where they wish to sell them, and in some cases what I have to say has taken effect. But, I should be glad of an opportunity to say, for the benefit of manufacturers as a class, and for that of American export trade as a whole, some of the things that I have said from time to time to individuals. From the point of view of the manufacturer patenting is desirable, because it prevents the foreigner from doing what he has otherwise every legal right to do at any time that he sees that a foreign invention is meeting with success, and possibly success at his expense, in that it is being sold in his territory and supplanting his own products, viz., make and use it."

"From the point of view of the selling agent in Europe, who is asked to spend time and money doing missionary work, the desirability of patenting the new thing is evident from the first, and the conviction strengthens with the

success of the agent in the unprotected territory. For the manufacturer has at least the protection of home patents, and if through leaving himself unprotected he loses his foreign fields, he has at least his own country to work in with no one to say him nay. But the selling agent abroad, who has put in hard work to convince a very conservative public of the superiority of the new thing (a task which is none of the lightest, especially if there is a marked difference in first cost against the novelty) is cut out completely. This digging wells half down to water is seldom relished even by the most philosophic and philanthropic of agents."

"But when we consider the question solely from these two standpoints we have still by no means got a full view thereof. There is the customer to consider. He does not want to buy a lawsuit with a machine or other purchase. In case the article to be sold is not patented in the country in which it is offered for sale there, is the danger that it has already been patented by another, and that the patentee will very justly bring against the purchaser an action for infringement of his chartered rights. In this danger the resident agent—the missionary—participates. It is useless to assure the customer that the manufacturer is one of the largest concerns in his native country, and will protect the purchaser against any possible suits for infringement. In the first place the customer has no means of verifying the statement about the financial weight of the manufacturer, and in the second he does not care; he does not wish to be annoyed by any suits, no matter how heavily he may be backed up. In the third place, if he knows anything about German patent law, and the case is a German one, he will quietly remind the missionary that in

that country the infringement of a patent is not merely a civil but a criminal offence; and no manufacturer in America, however influential in financial circles, can get around that part of the difficulty. Section 36 of the German patent law of April 7, 1891, says: 'Whoever knowingly uses an invention contrary to the ordinances in sections 4 and 5 will be punished with a fine of 5,000 marks or with imprisonment not to exceed one year.' The quoted sections 4 and 5 are those which secure to the inventor the sole rights of the invention which he patents."

"Further, there are many manufacturers who seek to convey to their agents and to the customers the impression that the matter is patented in the country of sale, not by directly saying so but by implication. Sometimes this implication is only one of silence; but for all that the attempt, whether unlawful or not, is dangerous in most countries and especially in Germany. For section 40 of the law, already quoted, says distinctly that whoever marks objects or their packages with any sign calculated to impress one falsely with the idea that the object is patented, according to the German law shall pay a fine of 1,000 marks. I had been four months in correspondence with the European general agency of an American manufacturer. To get a definite answer, or even any answer at all as to patents, was next to impossible. At last, however, I got the following: 'Our friends, the — Co., apologize for the delay in answering our letters about patents, which they say has occurred through oversight. They write: 'As you may be aware, probably we have a great number of persons applying for patents in our own and foreign countries, and to possess you of definite information concerning them would be rather a difficult matter. It will, however, suffice and be entirely satisfactory to you to say that we will fully protect our customers against damages resulting from any lawsuits brought against them by reason of the use of our devices.'"

"The foregoing is not to be commended. I have not the slightest doubt that I can get from the Reming-

ton typewriter people, or from the Westinghouse concerns, or from the McCormick establishments, within fifteen minutes after application to the proper head of department, the number and date of every patent owned or controlled by the concern in question in any country in the world where they are protected. If anyone does not believe it let him try a little bit of infringement, and call at the office of the company in question to discuss the matter in person."

Electrically-Heated Handle.

An electrically-heated handhold is the subject matter of a patent granted to Fred Smith Davis, of Robertsville, S. C.—The object of the invention is to provide for an operator who is exposed to the cold an electrically heated handhold, such for example, as rheostat and brake handles on electric motor-cars or electric automobiles, pilot-wheel handles on boats or ships, and brake-handles on railway-cars. It is the object to do away with the ordinary handles of wood or metal, and to substitute in their place a handhold electrically heated at the will of the operator to such a temperature as will insure him having his hands comfortable even in the most severe weather. Furthermore, as the palm of the hand is a large nerve-center, such an electrically heated handhold will aid materially in keeping the operator warm. In the embodiment of the invention, the handle is provided with a hollowed out portion, in which is located electrically-operated means for heating the handle. A plug is provided for hermetically closing the handle. Insulated electric wires lead to this heating means. An insulating plug breaks the circuit through the wires, and a contact-plug is adapted to be inserted in the insulating-plug to complete the circuit.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted on the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy; twenty copies \$1.50.—Please give correct data in ordering.—Address,

THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

Issued September 5, 1905.

MECHANICAL PATENTS.

Acid and its derivatives by electrolysis. Reducing oxalic. E. von Portheim
Acid and making same. Indophenol sulfonic. A. L. Laska
Acid Making dialkylbarbituric. J. Altschul
Air moistener. E. Jordan
Amusement apparatus. C. V. Johnson
Anesthetic generator and mixer. D. D. Weissell
Annunciator. C. C. Cadden et al
Arm support and brace. J. C. King
Assay furnace. 2 pats. W. W. Case
Atomizer. J. Kranz
Automobile steering gear. S. J. Macfarren
Awning. Ventilating. S. H. Voorhees
Axle. C. A. Benton
Axle cutting and trimming machine. R. F. Wright
Bail ear. T. B. Burgert
Bait. Artificial. J. D. Sherbrook
Baling press. W. T. Hulscher
Bailing press. W. H. Gray
Barber's chair attachment. A. D. Kandle
Barrels or drums. Apparatus for forming. J. L. Sheppard
Bearing. Ball. K. Klahn
Bearing. Self oiling. E. A. Strause
Bed spring. J. S. Click
Bee smoker. H. Root
Beer heater, condenser and continuous doubler. J. J. Corcoran
Bell. Electric. C. J. Schwarze
Bell or like device. Electric. C. J. Schwarze
Belt tightening device. J. J. Schwaner
Billiard cues and the like. Apparatus for mechanically chalking. C. I. Michaelson
Binder. Loose leaf. H. R. Wood
Binder. Temporary. W. F. Stevens
Binder. Temporary. H. E. Wendland
Binder. Temporary. A. C. Hafely
Blast device. Pneumatic. G. G. Nightingale
Blasting powder. W. A. Gill
Blocking machine. W. H. Webb
Boat. M. Green
Boat hoisting and lowering mechanism. F. S. Pett
Bodkin. I. M. Geisler
Boiler furnace. Steam. J. J. Le Duc
Boilers. Composition for the removal of scale from steam. L. W. Thompson
Bookbinding and locking device. A. J. Hansell
Bottle. A. H. Riggs
Bottle capping machine. H. Robinson
Bottle closure. H. Dickinson
Bottle. Dispensing. C. B. Forsyth
Bottle. Non refillable. J. C. Turney
Bottle. Non refillable. R. E. Stipes
Bottle. Non refillable. O. E. Azzoni
Bottle washing and conveying machine. C. V. Tunelius
Boundary stone or post. L. Weilandt
Brakes to vehicle and other wheels. Means for applying. G. Eisenkramer
Brick. Fire. R. O. Hayt
Brick. Jamb. A. Geary
Buckle. C. W. Hamilton
Buckle. C. S. Comstock
Buckle. B. Jacob
Building block mold. J. A. Johnson
Bull's eye. C. B. Bosworth
Buoy for locating sunken vessels. A. Hattan
Burglar alarm. Pocket electric. H. A. Kreh
Burner. C. R. Lindsay, Jr
Butter. Manufacture of renovated. F. H. Stanley
Cabinet. Kitchen. E. Ramsey
Can cover lock and seal. Milk. F. A. Ariens
Cap. P. A. Conne
Car and engine replacer. F. J. Fewings
Car coupling. E. C. Washburn
Car. Dump. J. S. Stevenson
Car fender. P. Luther
Car floor frame construction. Railway. J. M. Waugh
Car. Railway. E. J. Sattler
Car. Sleeping. D. S. McEwing
Car track clearer. Street. V. Chisholm
Cars along railways. Control of apparatus governing the passage of. H. W. Griffin
Cars. Deck sash opener for railway. J. Kress
Cars, &c. Driving gear for motor. E. J. de Normanville
Cars. Dust and smoke conveyer for. I. A. Putnam
Cars. Life guard to be applied to electric tram. H. Lambelle
Carpet sweeper. A. Crossman
Ceilings. Implement for attaching hangers to. J. R. Reynolds
Cement block machine. A. Burkholder
Cement block press. E. H. Harry et al
Cement brick making machine. W. F. Conrad
Chain welding machines. Chain holding device for. R. Muller
Chair fan attachment. Rocking. J. Segar
Chairs. Folding canopy attachment for. W. B. McMahon
Chimney cap. C. F. Prichard
Chuck. Reversible. D. E. Kempster
Churn. J. K. Beazell
Closet heating apparatus. Outdoor. E. O. Reed
Coal separator. J. Pollock
Coal storing and screening apparatus. L. K. Hewitt
Coin manipulating machine. E. J. McIlvried
Colter. Plow. J. F. Cone
Combining machine cylinder. R. Meyer et al
Combustion chamber. J. F. Wentworth
Concentrators. Separating and sizing attachment for. H. J. A. Smith
Concrete receptacle mold. J. A. Johnson
Condenser. J. M. James et al
Contact breaker for sparkers. W. J. Cochran
Conveyer system. Overhead. J. F. & D. J. McKay

Corn husker. G. W. & C. E. Goss
Corn husking implement. G. W. & C. E. Goss
Corset. E. West
Corset. Apparel. D. Kops
Cuff holder. O. J. High
Current motor. A. Wieble
Curtain pole support. S. M. Ferguson
Curtain poles and cornices. Attachment for. S. Kamin
Curtain roller. G. J. Record
Dampener regulator. Time. A. B. Ferdinand
Deodorizing apparatus. J. B. Sutherland
Desk. Sheet metal. F. B. Stevens
Discharging apparatus. Rotary. J. J. Power
Door alarm. J. Swan
Door opening and closing device. Automatic. H. H. Pahl et al
Door. Rotating. L. C. Hansen
Doors, windows, &c. Fastening. J. M. Newall
Dowel joint. B. C. Rockwell
Dredging apparatus. G. E. Turner
Drum. Air heating. G. E. Leonard
Drum. Rotatory. J. F. Dornfield
Duplicator. S. Forster
Dye and making same. Blue azo wool. A. L. Laska
Dynamo governor. C. A. Eck
Edge trimming machine. B. F. Mayo
Egg beater. W. R. Marie
Electric heater. F. O'Hanlon et al
Electric switch. M. Miller
Electric wire carrier. Automatic. F. E. Dechou
Electrical conductor conduit. W. C. Robinson
Electrolytic process. C. Hering
Electromagnets. Machinery for making. R. Varley
Elevator. 2 yats. J. J. Schwob
Engine. R. P. Moodie
Engine spark ignition device. Explosive. T. B. Reunell
Engines, &c. Shed for. D. MacPherson
Evaporating apparatus. W. E. Jaques
Excavator. Dumping. E. T. Callahan
Fan. Mechanical. A. E. Hovey
Fastener. Snap. E. D. Simons
Fastening bolt and door check. Combined. A. M. Johnson
Faucet. Soda water. F. A. Sylvestre
Feeding mechanism. Automatic. R. N. Cranford
Fence. A. Frost
Fence post. M. E. Johnson
Fence post. T. Berntson
Fence post. M. K. Blackburn
Fence post mold. J. C. Fulkerson et al
Fence stretching device. Wire. J. Harris
Fence tie. Wire. J. M. Gilmer
Fence. Wire. T. Litwiller
Fender. W. J. Birchell
Fender. L. Carlson
Filling device. C. Skym
Filter. J. E. Mannix
Fire extinguisher. M. R. Poole et al
Fire truck. J. Derx
Fish trap. C. A. Gee
Fishing bob or float. A. C. Persing
Fishing reel. F. J. Rabbeth
Flushing device. D. B. Strickland
Fly and mosquito gun. R. Petersen
Fly catcher. O. Ziener
Frame construction. Metallic. J. A. Lundstedt
Furnace. G. Machlet
Furnace for the manufacture of iron sponge. G. Grondal
Game apparatus. J. F. MacDonald et al
Game apparatus. E. R. Howard
Gas bracket. T. Smith
Gas burner. W. M. Welch
Gas burner tip. E. Kersey
Gas generator. Acetylene. J. J. Graf
Gas generator. Acetylene. E. M. McGee
Gas generator. Acetylene. J. P. Powell
Gas heater. J. Knoerschild
Gas making apparatus. J. Leede
Gas meter. G. Caffaro et al
Gate. J. C. Coffits
Gate. J. Dalrymple
Gate. T. J. Van Pelt
Gearing. Frictional. F. W. Lindgren et al
Gearing. Power transmitting. J. L. Kunz
Glass decoration. T. Ott
Glass. Shaping. F. L. O. Wadsworth
Glass sheets. Manufacture of. F. L. O. Wadsworth
Golf tee and blank therefor. O. R. Coast
Grain separator. D. D. Nofziger
Greenhouses with supporting columns. Adjustable clip for connecting purlins in. G. M. Garland
Guns. Ejector mechanism for shot. J. H. La Fave
Guns for small ammunition. Means for adapting the Krag and other bolt. T. G. Bennett et al
Guns. Side pull firing gear for. S. A. S. Hammar
Hair drying and warming apparatus. Portable. C. Heath et al
Ham compressing apparatus. H. A. Kurlinke
Harrow. C. Shabley
Harrow. Disk. A. C. Lindgren
Harvesting machine. Bean. C. Baer
Harvesting machine. Cotton. J. F. Appleby
Hat pin. E. L. Scott
Heating system. S. V. Sharood
Hedge and heddle frame. W. S. Lackey
Hedge nailing machine. H. Briggs
Hinge. O. Corrigan
Hoisting and conveying apparatus. C. J. Allen
Holder. P. F. Denning
Horseshoe. C. Conn
Hose coupling. A. J. Itrich et al
Hose shut off and door opener. Combined. P. Pirsch
Humidifier and air moistening apparatus. S. W. Cramer
Hygroscope. H. E. Wetherill
Illuminating apparatus. Electric incandescent. G. B. Francis
Incubator. F. C. Perkins

Index head. H. R. McGregor
Indicating apparatus. S. W. Marvin
Insecticide. W. E. Everette
Insulating electrical conductors. Machine for. C. H. Hawkins
Insulator. Heat. E. Kunz
Internal combustion engine. J. F. Duryea
Invoice recorder. S. Guthman
Journal box. Lubricating. J. Rogers
Keg. Beverage. L. Baroch
Knitting machine. Circular. E. A. Hirner
Lacing point. Belt. D. Daniels
Ladles, &c. Pouring device for. R. Schneider
Lamp socket. Electric. G. B. Thomas
Leather and leather cloth. Manufacture and waterproofing of. P. C. D. Castle
Leather treating machine. L. J. Hirt
Leather, &c. Trimming mechanism for. B. F. Mayo
Letter box alarm. Automatic. C. D. Tucker
Level and carpenter's square. Combination spirit. C. G. Weatherly
Level. Spirit. C. G. Smith
Lime. Hydrating. J. Thomlinson
Linotype machine. P. T. Dodge
Linotype machine. D. S. Kennedy
Loading and unloading device. W. B. Elliot
Locomotive draw bar. C. E. Mentzer
Loom pattern mechanism. R. Crompton
Loom picker sticks. Bunter for. A. Allen, Jr
Mail bag for carriers' delivery. J. O. Taylor
Map case. C. E. Case
Map. Wall. E. Carrier
Match box. Safety. C. H. Jeffers
Match safe. F. N. Richardson
Measuring instrument. Distance. G. F. Staal et al
Measuring tool. O. Osmonson
Mechanical motion. W. C. Van Vliet
Mechanical movement. K. Knudsen
Mechanical movement. J. F. Siems
Micrometer. L. Vuithier
Milking apparatus. J. H. Hoover
Mine gate. N. K. Bowman
Miter box. A. B. Morris
Molding machine. F. W. Hall
Molding machine. S. Griffith
Motion. Parallel. F. M. Myers
Mucilage receptacle. C. L. Hawley
Muffler. E. R. Mcfitt
Musical instrument. Stringed. J. Brandt
Name plate. Baker's. L. R. Smith
Nozzle. Air blast. J. Haas
Nut for axles. Friction. S. R. Bailey
Nut lock. C. C. Garrison
Nut lock. C. P. Dyer
Nut. Self locking. C. W. Powell
Ordnance firing mechanism. W. H. Bevans
Ordnance. Rapid fire. J. W. Dearborn
Ore concentrating table. A. Tetrault et al
Ore concentrating table. Dry. A. Tetrault et al
Ore roasting furnace. F. H. Trego
Oven. Malleablizing and annealing. W. L. Casaday
Packing apparatus. Automatic. F. W. Lassig et al
Packing rod. O. J. Garlock
Painting apparatus. H. Du Brau
Paper creasing machine. A. B. Farham et al
Paper fastener. A. de Saint Chamas
Paper making. R. S. Case
Paper rolls and other articles. Manufacturing plugs or bushings for. F. Kaufman
Pasteurizers. Intermittent movement in. W. J. Ruff
Pavements. Apparatus for repairing asphalt. J. H. Morcom
Pen. Fountain. W. Bolles
Pen, pencil, &c. Covered. A. E. Rose
Photograph attachment. F. A. Milette
Photograph attachment. L. T. Prudon
Photographic shutter. T. Brueck
Piano hammer. J. W. Cords
Pipe flange cover. W. A. T. Willink
Planter. J. C. Tunnichiff
Planter. Can. A. Mariani
Planting machine. Potato and the like. T. G. Richmond
Plastic block making mold. G. F. Fisher
Plow. A. Beauvais
Polishing machine. P. H. Barz
Power generator. Electromagnetic. J. L. Potter
Power transmission devices. Means for preventing strains and vibrations in. A. A. Kent
Power transmitter. Reversible. A. H. Masters
Printing machine. J. S. Duncan
Printing plate designs. Apparatus for producing. T. S. Fox
Pulley attachment. C. C. Baughman, Sr
Pulp from sugar cane, cornstalks, sorghum and analogous pithy stalks and product of such process. Process of manufacturing soft absorbent. V. Drewsen
Pump. Breast. U. D. Ezell
Rail fastener. H. M. Mace
Rail joint. H. E. Easterday
Rail joint. S. Martin et al
Railway crossing. E. F. Meisner
Railway crossing gate. J. D. Miller
Railway gate. I. Mead
Railway. Pleasure. J. A. Mayhew
Railway. Pleasure. J. C. Reckweg
Railway switch. W. H. Bidinger
Railway time indicator. C. Whitaker
Raking and loading apparatus. J. R. Lewis
Ratchet stock and die. C. W. Evans
Reeling edible fibrous material and grain. Machine for. M. L. Luebben
Register. M. L. Luebben
Register. J. Jensen
Regulator. A. F. Pieper
Resistance device. G. Baehr
Rotary engine. E. C. Warren
Rubber shoe. H. J. Doughty
Rule. L. A. Wilson
Sacks, wrappers, &c. Material for. G. L. Jackson
Saddle. Top roll. G. L. Pierce
Safety device. C. J. A. Machut

Sample case. W. Y. Dunning
Scale. Wagon. B. T. Jr., & J. M. McDonald
Scale. Weighing. W. H. Jordan et al
Seed drills or cultivators. Manure sowing attachment to. A. Scherer
Sewage or drain water. Apparatus for carrying out bacterial purification of. C. Kremer
Sewing and embroidering machine. R. Cornely
Sewing machine cabinet. W. Person
Sewing machine trimming mechanism. W. H. Stedman
Shade fixture. F. G. Rohner
Shaft attachment. Vehicle. D. J. Quigley
Sheet feeding apparatus. W. Zander
Shelf bracket. Detachable. J. Kettman
Sifter. Ash. E. W. Stokien
Sifter or screen. I. H. Taylor
Sign. Electric. C. Haller
Sign. Illuminated. E. C. Bacon
Silk. Manufacture of artificial. H. Bernstein
Skinning or winding machine mechanism. J. H. Young
Slime concentrating table. A. Tetrault et al
Smoke and gas consumer. D. Giff
Smoke consumer. A. Gronberg
Snare. Illuminated. C. W. Stowe
Soldering machine. T. Bumann
Speed changing mechanism for power transmission. A. L. De Leeuw
Spinning apparatus. Yarn. A. E. Rhoades
Spring compressing device. J. W. McDonald
Springwork. J. A. Staples
Square and protractor. Combination. E. Oehrie
Stamping machine. J. D. Lodge
Stanchion. Cattle. C. W. Wasson et al
Steam boiler. E. F. Edgar
Steam superheater. D. Roberts
Steam supply governor. T. M. Wilkins
Stencil duplicating apparatus. A. D. Klaber
Still. Water. H. F. Hodges et al
Stirrup. Safety. C. F. Eidenburg
Stop mechanism. J. Rodriguez
Storage battery. A. E. Knight
Surgical appliance. W. F. Main
Talking machines. Means for connecting amplifying horns to. J. H. B. Conger et al
Tar extractor. H. L. Doherty
Telegraph. Automatic. A. C. Gimore
Telephone exchange system. E. H. Strauss
Telephone memorandum attachment. F. R. Welsh
Telephone repeater. D. R. Wilson
Telephone switch. M. Setter
Telephone system. O. M. Leich
Tent pin. P. S. Biller
Threshing machine. P. E. Good
Threading machine spreader. P. E. Good
Tile. W. P. Meeker
Tire machine. Wheel. W. C. Poole
Tire. Vehicle. H. P. Maxim
Toe weight. O. D. Shark
Tong holder. M. T. Dye
Tool. K. Marotzka
Tool guide and holder. P. E. Skilling
Tool holder. Gang. H. J. Welter
Toy. J. G. Sinclair
Toy. G. C. M. Alworth
Toy. Sand wheel. H. I. Dedrick
Train signal. Automatic. C. H. Martin
Trolley. R. G. Griswold et al
Trolley finder. J. Morrow
Truck. Car. W. O. Freet
Truck. Motor. C. Schmidt
Tube welding machine. J. S. Worth
Turbine. H. I. Young
Turbine. Elastic fluid. J. Wilkinson
Turbine engine. C. V. Cocco
Type writer machines. Paper roll holder for. W. H. Bright
Type writing machine. J. B. Secor
Type writing machine platen. H. J. Halle
Umbrella. B. M. Greene
Undergarment. Apparel. A. H. Benjamin
Undergarments. Means for connecting. A. H. Benjamin
Valve mechanism. Engine. E. G. Moore
Valve. Triple. W. K. Omick
Vehicle cooling arrangement. Motor. L. Renault
Vehicle storm shield. C. F. Wensinger
Vehicle wheel. J. E. Harrod
Vehicles. Time and distance recording mechanism for. E. W. Rollins
Verding machine. P. J. Regan
Vending machine. J. B. Hurd
Vermin on board ship. Extirpation of. W. Leybold
Wall construction and block therefor. G. F. Ftscher
Wall construction for chimneys, bins, cisterns and the like. Circular. C. Weber
Warp stop motion. C. E. Blair
Washboard. T. J. & W. W. Hubbard
Washing machine movement. W. H. Vess
Watch balance. Compensation. C. Culman
Watch winding indicator. C. E. De Long
Water by distillation. Apparatus for purifying. H. F. Hodges et al
Water cooler. D. C. Walsh
Water extracting device. J. H. Hendrickson
Water. Purifying. H. F. Hodges et al
Water purifying apparatus. H. F. Hodges
Weight raising, lowering or hauling apparatus. J. Stevenson, Jr
Well tubing. C. A. Lantz
Wheel. J. I. McGuire
Wind wheel. O. Ulrich
Winding machine. Automatic. J. C. Andersen
Window fastening. T. E. Barber
Window. W. I. Short
Wire bending machine. R. E. Ackley et al
Wire twisting tool. G. Schilling
Wrench. W. Frazer
Yarn guard for reels. W. P. Wingate

DESIGNS.

Casket plate. A. V. Eginton
Casket handle socket plate. A. V. Eginton
Clock case. T. B. Stephenson, Jr
Clock frame. 2 pats. S. M. Lawson
Fire box of a tube heater. C. H. Hoffstetter

The Inventive Age

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 918 F Street, N. W.,
WASHINGTON, D. C.

The INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND A HALF.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

The INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 15 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,
WASHINGTON, D. C.

Entered at the Post-office as second class matter.

WASHINGTON, OCTOBER, 1905

Report of the Commissioner of Patents.

During the fiscal year ending June 30 last, the United States Patent Office did the largest business it has ever done in a single year. The receipts of the office were more than a million and a half dollars, and the expenditures were a quarter of a million less. The Patent Office is probably the only government bureau that is more than self-supporting. Every year it turns a handsome surplus in the United States Treasury. Within the past year the labor of caring for the enormous number of applications for patents and trademarks has increased two-fold, and Commissioner Allen asks that a larger force be provided to look after the work. He states:

APPLICATIONS RECEIVED.

"There were received in the last fiscal year 52,323 applications for mechanical patents, 749 applications for designs, 174 applications for reissues, 1,846 caveats, 11,298 applications for trade-marks, 1,236 applications for labels and 448 applications for prints. There were 30,266 patents granted, including reissues and designs, and 1,426 trade-marks, 1,028 labels and 345 prints were registered. The number of patents that expired was 19,567. The number of allowed applications which were by operation of law forfeited for non-payment of the final fees was 5,154. The total receipts of the office were \$1,737,334.44; the total expenditures were \$1,472,467.51, and the surplus of receipts over expenditures, being the amount turned into the treasury, was \$264,866.93.

NEW TRADE MARK LAW.

"The most important event which has occurred in the operations of the Patent office during the past year has been the taking effect of the new trade-mark law, which was approved February 20 and which took effect April 1, 1905. This new law, in extending the registration of trade-marks to those employed in the interstate commerce, and in its reduction of the government

fee of \$25 to \$10, has stimulated an enormous increase in the trade-mark work of this office. This statute also provides for oppositions to the registration of trade-marks, which is a new subject of litigation in the business of this office.

"The last three months of the fiscal year considered in this report witnessed the filing of 9,710 applications for registration of trade marks under the new law; and although, owing to the delay necessarily caused by the requirement of publication of trade-marks prior to their registration of trade-marks in these three months, the fact that this office will need to increase largely its force engaged in this work has already become very clear, and this division has already required to be helped by taking examiners and clerks from other divisions where they were much needed.

CLASSIFICATION NECESSARY.

"In view of the large number of patents issued by this government, amounting to about 850,000, a good system of classification is absolutely necessary to furnish satisfactory results in preliminary searches made by this office, and it is much regretted that it has not been possible to use sufficient force to make more rapid progress in this work. I believe it is of great consequence that the classification work of this Office should be more rapidly carried out, with a view to its completion, so far as classification work can ever be completed. I am of the opinion that good classification is the only means by which satisfactory preliminary searches can be made.

"In the past year progress has been made in the restoration of exhausted copies to the files, and it has been possible to meet promptly orders for exhausted copies of patents and for manuscript copies of records. The correspondence of the office has also been transacted with promptness.

RECEIPTS OF THE OFFICE.

"Of the total receipts of this office, the fees received in the mail and express room in the fiscal year ending June 30, 1905, amounted to \$1,020,892.61. Of this amount there were received by ordinary mail 24,948 pieces, transmitting \$9,233.96. The number of complaints of losses of office fees alleged to have been sent by mail were eleven in number, claiming losses of \$3.70. This number includes complaints erroneously made, and it is thought to show a high condition of efficiency in the mail service which brings these funds to the office, as well as a satisfactory accounting by this office for funds transmitted in this manner.

"I am of the opinion that with the growth expected in the work of this office there should be a corresponding increase in the number of its employees and in the space provided for the transaction of its business. At the present time it cannot be said that either in number of employees or in the space provided are the necessities of this office adequately supplied.

"In this connection I beg to call attention to the fact that the net balance for the fiscal year just ended is \$264,866.93. I believe that a considerable part of this surplus could be wisely expended in the improvement of the service of this office, and that in justice to our service it should be so expended."

Selling Patents.

No sooner does an inventor receive his patent than he is confronted with appeals in the shape of alluring propositions, some going so far as to make definite offers for the patent right. While the methods of patent sale agents have changed somewhat, their goal is the same in each instance. It is the money of the inventor they are after. A party in Indianapolis has a scheme for making working drawings. If employed, he requires an advance payment and charges so much per hour. Sometimes if the inventor pays his bills, and demands to see what he has paid for, the party produces a drawing showing a trifling difference over the invention patented, and tells the inventor he is willing to sell the "improvement which has been made." If the patentee shows no willingness to buy the "improvement," then the party threatens to patent it himself. More often, however, the bills for making the "working drawing" at so much per hour so exhaust the patience and pocket book of the patentee, that they reach a disagreement which ends in the appropriation of the money on the part of the alleged draughtsman, and nothing is ever produced by the latter.

Another scheme was started at St. Louis during the World's Exposition by a concern which pretended to require no advance fees, but called for 2000 copies of the patent from the patentee. As the Patent Office only prints 75 copies of a patent, of course it was impossible to procure them there. The aforesaid concern knowing this, agreed to furnish the copies at a ridiculously low figure—about \$10. Those inventors who sent the money for the printing of 2000 copies of their patents never heard anything more from the fraudulent concern.

Another company called for an electroplate of the patent from the patentee, stipulating that it must be a certain kind of electroplate, and stating that if it could not be procured, they would be glad to furnish it for \$8. Those inventors who sent the \$8, as a rule never heard anything more from the company. But if they were too persistent and demanded to sell an electroplate, a cheap plate was furnished which probably cost \$1.

Along this line of propositions is that made by concerns in Buffalo and Boston requiring patentees to furnish wood-cuts and stipulating that if the wood-cut cannot be obtained, it can be furnished by them for \$4.

Something new has recently come out of the nest and it requires two concerns to work the scheme. One concern writes to the inventor offering \$10,000 for the patent, provided a commercial prospectus shows that the invention is worth it. Another concern writes to the inventor offering to prepare the prospectus for \$10. On the face of things the concerns appear disconnected, but when the letters are taken together and compared, the relation between them is evident.

Some years ago there was a scheme devised whereby a party in Indianapolis sent circulars out to patentees offering to buy their patents, pro-

vided an abstract of title, to be furnished by a certain named party, showed the title to be clear. The charge for the abstract was fixed at \$5. Many inventors sent this money. The matter becomes so flagrant that the Post Office Department investigated, and as a result of the findings, broke up the combination.

Another scheme, which has not been practiced to any great extent, however, calls for the production by the patentee of a written opinion of the validity of the patent, the sale-agent promising a role in the event the report as to the patent is favorable. Of course the agent wanted the opinion to be prepared by a certain party named in the circular letter, the fee for the opinion being divided between the two.

A Detroit concern offers inventors to sell their patents, provided they will obtain, through them, Canadian patents.

A Philadelphia company offers to print a "for sale" ad., in 200 newspapers, visit manufacturers, write up the invention in a certain paper and send out circular matter all for the sum of \$10. Our opinion of this proposition is that all the inventor gets for his money is a write-up in a paper which has no circulation, and is sustained mainly by the \$10 remittances from inventors.

Man's base ingenuity may devise other schemes for selling patents, but they will all have one end in view—namely, to obtain the money of the inventor without giving any adequate return.

Wood Seasoning Process.

In these days of rapid construction, when tenants of houses built for quick sale, and find repairs of woodwork a heavy yearly burden, it will be reassuring to learn that extended time is no longer required to place well seasoned wood on the market. As musical instruments in which wood is used must have it well seasoned, necessity ordinarily compels manufacturers to wait 6 years before using timber freshly cut. The wood is left in the open air for a period of 4 years and then subjected to dry heat in a drying room for an additional two years.

It is claimed that a recently discovered process gives artificial age to wood. The inventor replaces the sap of trees by beet sugar or saccharine, which acts as a preservative of the wood by driving the natural humidity from the fibers. The method employed is as follows: Newly felled wood is laid on a cart, which is rolled to a huge cylinder, the interior of which is provided with pipes. Either hot or cold water, as occasion requires, may be introduced into these pipes. The wood having been placed in the cylinder, the latter is supplied with sugar or saccharine. Hot water is then forced through the pipes. The contact of the heat boils the sugar, which penetrates the pores of the wood. The cooling process is accomplished by a current of cold water forced through the pipes. The cylinder is emptied of the sugar or saccharine, and the cart, with its burden of wood, is rolled into a chamber where it is dried by currents of hot air. After being cooled again, the wood, properly seasoned by the sugar, is ready for use. It is said not to spring or gather dampness, and to be proof against destruction by insects. This point may be considered an important one in view of the use of lumber in our newly acquired tropical possessions, where insects play havoc with wood structures.

SCIENTIFIC



PROGRESS.

Train-Warning Device.

SUCCESSFUL EXPERIMENTS WITH ELECTRICITY.

Much interest has recently been aroused in Germany by the success of all practical tests to which the Pfirrmann-Wendorf apparatus for preventing railway accidents was subjected by the managers of the Frankfurt on Main division of the Prussian State railways, experiments covering a period of several months, which proved uniformly satisfactory even under the most unfavorable conditions due to rain, snow, fog, and darkness.

These experiments were made on a specially prepared track, several miles in length, extending from Goldstein to Sachsenhausen. Each locomotive was supplied with a small Pfirrmann-Wendorf apparatus, which, with its storage battery, occupied a space only 20 centimeters in depth and breadth, respectively, and 30 centimeters in length. Communication between this apparatus and the two track rails was supplied by the metal parts of the locomotive through the axles and wheels, while an insulated contact device connected the apparatus with a carefully insulated auxiliary rail running midway between the track rails, the contact device being so arranged that it could easily be moved back and forth, or sideways. Positive and negative impulses could thus be sent in different directions, frequent changes being made from one rail to another.

If there is an obstruction of any kind within a certain distance, an alarm is thus given, both visibly and audibly, by means of a red light and by the ringing of a bell. No matter how many locomotives there may be on the track, each gives its warnings. Engineers, signalmen, and station masters can thereupon communicate together by telephone, the central auxiliary rail serving as the channel of communication. In each locomotive there is a telephone which is protected against the vibrations caused by the motion of the locomotive through being fastened on springs like a bicycle lamp. In like manner in cases of sudden danger track guards can transmit a warning to the engineers of approaching locomotives.

If for any reason a storage battery becomes exhausted it can be replenished with electricity produced by the locomotive; and even if this supply fails, the current from a semaphore or signal station can still transmit to the engineer explanations and instructions. If by mistake a semaphore falsely registers "free track," the endangered trains nevertheless supply each other with signals of warning. An alarm is also given automatically when a switch is falsely set or insecurely closed.

This system requires neither wires nor poles, their place being supplied by massive and more reliable iron.

The auxiliary line, consisting of ordinary T iron, may be limited to important or dangerous portions of the

track where the view is obstructed, or to the vicinity of sidings, curves, bridges, and tunnels. Old rails may be utilized for the central auxiliary line. Thus the cost of even an uninterrupted line can be made exceedingly small in comparison with the value of lives and merchandise thus protected.

Natural versus Induced Draught.

A good deal has been written on this subject, both by the advocates of mechanical draught and the conservative engineers who adhere to the chimney. Some have expressed the opinion that the time would come when excessively tall chimneys would remain only as monuments to the folly of their builders. Others have foreseen the time when all chimneys as means for producing draughts would be abandoned, at least in new constructions. Chimneys continue to be built, however, and moreover the increase in the number of chimneys upward of 300 feet in height is noteworthy, especially in connection with smelting works. The Grant chimney at Denver and the Orford chimney at Constable Hook are overtopped by few in the United States; while recently a chimney nearly as high has been completed at Butte. In metallurgical practice the necessity, in many cases, of dispersing the smoke high in the atmosphere is an important consideration in addition to suction power.

The chimney will never be entirely dispensed with. At the same time the employment of artificial draught will increase. Each system has its advantages, which make the choice a matter of engineering determination in each particular case. In connection with the chimney the principal subjects are first cost, interest on the investment, maintenance and depreciation. In connection with mechanical draught systems there are the same items as for the chimney, plus cost of operation. The relative economy is capable of accurate determination: the value of the various factors is, however, often not truly appreciated.

New Heating System.

Maintaining a clear, fresh atmosphere in a building located in a district where smokiness and dust are conspicuously present, is an accomplishment of great interest, according to a writer in Cassier's Magazine. It appears to have been satisfactorily attained in the case of the office building of the Porter Company, locomotive builders, of Pittsburg, by the installation of a combined plenum heating system and an air-washing outfit. The heating apparatus, consisting of a fan, heater, and belted motor, is located in the basement of the building in conjunction with the washer, which consists of a metal supporting frame, filled with broken coke over which water is allowed to trickle. The air, as it passes between the fragments of coke, is thoroughly cleansed of smoke and dust, which is washed down by the water to the bottom of the device and is there removed. Previous to the installation of this plant, drawings, papers, everything in fact, became very dirty. When the new heating system was in service last winter,

a remarkable transformation became at once apparent. No air could go into the building except through the heating and washing apparatus, and the slight pressure maintained within doors caused outward leakage at all points where leakage was possible.

During the past summer the system was used for ventilation, the heater being thrown out of service, and the result was found to be a clean atmosphere as before, besides a reduced temperature within the building of about 6 degrees as compared with the temperature of the outer air. Pittsburg atmospheric conditions are notoriously bad, so that the successful operation of the apparatus here mentioned is particularly encouraging.

Kindling Fires with Clay.

In a recent report, the State geologist of Indiana gives some interesting particulars regarding the use of refractory clay for the purpose of kindling fires. The clay is mixed with one-half of its bulk of sawdust, and is then moulded into an oval hen's egg, and with four grooves running lengthwise. The solid thus formed is then burned, and in the process of burning the sawdust is destroyed, leaving a porous mass of fire clay of great refractoriness. A bundle of copper wire is attached to this, and the fire kindler is complete. When dipped into a can of coal oil and allowed to remain over night, it absorbs enough oil to burn for 15 or 20 minutes, with a flame sufficient to kindle either coal or wood fires.

Improved Method of Milling Wheat.

A correspondent of the London Times calls attention to a new method of milling wheat, which, it is claimed, "embodies a discovery that will prove as valuable in its own sphere as Bessemer's discovery in the production of steel was in its sphere." It is not described, but is said to be in operation in London at a place designated. The correspondent says:

"The ordinary cylinder or roller mills give a total yield of from 68 to 72 per cent of the weight of wheat milled. By Mr. Apostoloff's system a total flour yield of 85 per cent is procured. He thus gains an average of 15 per cent in the yield of flour, or an increase of about 21 loaves of 4 pounds each in the quantity of bread made from a quarter of wheat. So far the discovery applies to all wheats and is of equal advantage to all countries. But, in the second place, he has succeeded in producing from English wheat alone an absolutely pure and, as shown by analysis, a more nourishing and more wholesome bread than is obtained by the ordinary baker from more expensive flours, including those of the best known American and Hungarian brands. And it is in this aspect of it that the discovery affects the prospects of British agriculture. Under the existing system of milling and baking, the bread we consume is made from an admixture of English wheat with foreign wheats, the latter always largely preponderating and frequently to the extent of 3 to 1. Mr. Apostoloff can produce, and is actually producing from English wheat alone, a bread which experts pronounce to be equal in color and shape, and more than equal in nutritious qualities, to any bread produced, under the prevailing systems of milling and baking from foreign wheats.

If these claims are correct, it will be to the advantage of American millers to look into this new method of milling. An increase of 15 per cent in the flour-producing capacity of wheat would be about equal to the addition of 100,000,000 bushels to a year's crop."

Trade Warning.

HINTS FOR AMERICAN MANUFACTURERS.

Consul Kaiser, Mazatlan, Mexico, warns the makers of iron pipes, steel rails, etc., against their foreign competitors. He cites a case where Americans might have had heavy contracts for iron water pipes and steel rails but for the fact that they were outbid in both cases. The consul says:

"Some time ago I tried to secure a heavy contract for large-sized water pipes for the use of the water company of this city for the manufacturers of the United States, but although the company would rather have given the contract to the United States, the order went to Germany, not alone at a lower price but on a much lower freight rate.

In addition to the loss of the water-pipe contract, I desire to call the attention of our iron factors to the fact that a contract for 50,000 tons of rails has also been placed in Germany, a contract which our founders could and should have secured had they cared to do so.

This contract has been let for rails for the line to be built between Guaymas and Guadalajara by the Southern Pacific Railway Company. The contractors, Henry Lund & Co., of San Francisco, are now engaged in loading three ships at Krupp storage warehouses. One ship is loading at Antwerp, another at Glasgow, Scotland, and a third at Bilbao, Spain. The combined tonnage of these three ships is 18,000 tons and the contract calls for 50,000 tons of rails to be delivered before the end of the year.

William Lund, a brother of the contractor and one of the prominent merchants of Guaymas, is authority for the above statement.

Despite the fact that the Southern Pacific Company is one of the strongest and largest railway systems operating in the United States, there was no specifications in the rail contract that the steel must be bought from United States firms.

The contract simply was let and the contractors had the world's market to search for what they wanted. Competition was keen for the contract, which was one of the largest for many years, and the company did not wish to hamper the bidders with any conditions which might restrict their placing the orders wherever the most advantageous connections might be made. That the contract was turned over to the Krupps, of Germany, by Lund & Co., of San Francisco, augurs that the German firm underbid its American competitors."

Production of Cheap Camphor.

Natural camphor has become so high priced in Europe that experiments along various lines are being made for the production of a cheaper quality. Turpentine is the usual starting point. A process recently patented in France seems to have solved the problem. Turpentine is first converted into its hydrochloride and thence either into bornyl formate or bornyl acetate, the latter transformation being effected by heating at 130° to 180° C. with glacial acetic acid and anhydrous lead acetate. When decomposed by the usual processes of saponification the formate and acetate yield borneol, together with formic and acetic acids, respectively. On oxidation the borneol thus obtained is readily converted into camphor.

MECHANICAL INVENTIONS AND DESIGNS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

James M. Martin, inventor, deceased: William H. Gripe, assignee. Guthrie, Oklahoma Territory. Drill.—The invention relates to that class of drills employed in boring artesian and oil wells. It consists of a body channeled longitudinally to form a plurality of radial webs. Outstanding curved flanges are located on the inner ends of the webs, and peripherally curved cutting edges are formed on the flanges and project beyond the ends of the webs. Radial cutting edges project from the ends of the web and are all located in the same plane, the ends of the webs on the opposite sides of the radial cutting edges being beveled. A drill as thus constructed will rapidly cut a straight hole through soil or rock, and requires but slight rotation while in operation.

George W. Ogden, Prosperity, W. Va. Sash Balance.—This invention relates to that class of windows having connected counterbalancing sashes, the object being to provide a simple connection between the sashes which will permit the relative adjustment of the two sashes, and will also constitute means for locking the sashes under certain conditions. A bracket is mounted on the upper edge of the lower sash and includes a plurality of upstanding ears. A locking cam is journaled between certain of the ears and is movable into and out of engagement with the upper sash, while a pulley is journaled between the other ears, this pulley being independent of the cam. A cable secured to the upper sash passes about the pulley and about a pulley that is journaled at the top of the window frame. The end of the cable is adjustably connected to an intermediate portion of the same.

William R. Johnson, Freeport, Ill. Wrench.—It is a particularly difficult task to operate the nuts that hold the teeth of threshing cylinders, and the present invention is designed to provide means for conveniently doing this work. A stock is provided having a transversely disposed socket at one end, in which is slidably fitted a hollow stem having spaced ears at one end. A nut-engaging head has a shank journaled in the ears and is provided with a ratchet wheel fitted upon the shank between the ears. A slidable spring-pressed dog is located within the stem and co-operates with the ratchet wheel. The stock at the end opposite to that carrying the nut-engaging head is offset, and is provided with a transversely disposed handle bar. With this device, nuts can be readily operated within the confined cylinder.

Thomas H. Ewing, Wichita, Kans. Two patents. Animal Poke.—The subject matter of these two patents is a humane and effective device arranged to be worn by an animal and preventing said animal passing through or over a fence, the device being arranged so that it will be entirely comfortable under ordinary conditions, yet will inflict sufficient pain if an attempt is made to pass a fence to cause the animal to desist from such attempt. The two patents are similar in general respects each consisting of a neck-embracing ring comprising pivotal sections with outstanding arms arranged to engage the fence wires. A nose-embracing ring, also comprising sections, is connected to the neck-embracing ring and has spurs, which will prick the nose when the

neck-embracing ring is swung rearwardly. One of the patents covers the idea broadly and the formation of the parts out of metal specifically. The other is limited more particularly to the construction of the device of wire.

David P. Burdon, inventor: Samuel P. Holmes, Gustave Miller and J. F. Horr, assignees. Jacksonville, Fla. Electric Motor.—This invention relates to a novel oscillatory motor for various purposes, such as operating swinging fans and rocking cradles, churns, and the like. Briefly stated, the preferred embodiment of the invention consists of a tubular frame, comprising detachably connected sections. Field magnets are located within the frame and secured at their outer ends to the sections thereof, pole-pieces being attached to the inner ends of the magnets. Journal brackets are fastened to the outer sides of the pole-pieces and a rock shaft is journaled in the brackets, armature magnets being carried by the rock shaft and co-operating with the pole-pieces. A rotary shaft is journaled on the frame and carries a fly-wheel. A crank arm is connected to the rock shaft and has a pitman connection with the fly-wheel. A switch, having electrical connections with the field magnets, comprises a drum mounted on the rotary shaft and having a contact piece, and brushes, coacting with the drum, alternately engage the contact piece.

Galen Grogan, Murray, Kentucky. Vehicle Top Supporting Means.—The object in view is to provide a support for a buggy top which will permit the same to yield, should it strike an obstruction, thus avoiding damage to said top, the support, moreover, yieldingly elevating the top and thus doing away with the necessity of manually raising the same. The structure consists of angularly disposed arms having a spring connection between them, one of the arms being secured to the vehicle seat, the other having a clutch for attachment to one of the bows of the top. A brace is pivoted to one of the arms and has a sliding connection with the other, this sliding connection being in the form of a boxing having a dog that engages the teeth on the arm. The yielding connection permits the backward movement of the top if struck by an overhanging branch, limb, or other obstruction, and when the top is lowered, all that is necessary to raise it is to release the dog from the teeth, whereupon the spring will automatically elevate the top.

Simon C. Johnson, De Kalb, Ill. Three patents.—Two of these patents relate to platform and staging supports, particularly useful for supporting platforms on inclined roofs during the construction of chimneys, and the like. The earlier of the two patents embodies a hanger member composed of sections that are slidably associated and are held in adjusted position by a bolt. The upper section is provided with hooks arranged to engage over the ridge of a roof. Pivoted to the lower end of the hanger member is an upright supporting member in the form of an arch angle bar. A platform member is pivotally connected to the hanger member and has hooks that engage the supporting member. The parts are all constructed of metal, the particular members being of angle bars.

The second patent relates to improvements over the earlier structure. The general features are the same, except that in the improvement the hooks are carried by the platform member and are removable. In addition, a hanger element is employed in the form of a bar having hooks at its lower end that engage a tie bolt on

the platform support, the bar being provided with a longitudinal slot and having adjustably mounted thereon a hook. This invention is particularly useful for holding the scaffold support at different distances from the ridge when the chimney is not at or adjacent to said ridge.

Another invention patented by Mr. Johnson is a ladder attachment, being a device that may be secured to an ordinary ladder to permit of the same being hung upon a sloping roof or other analogous structure. The device is an exceedingly simple article of manufacture, consisting of a shank having a hook at one end and having divergent arms at its other end, which arms terminate in hooks that are adapted to engage the round of a ladder. Adjustably mounted on the shank is a keeper, arranged in reverse relation to the terminal-round engaging hooks, and being adapted to be engaged over the adjacent round whereby the device is securely attached to the ladder.

Delmar D. Pinkham, Longview, Texas. Two patents. Screen.—Both of the above patents cover certain improvements of an important nature in screens having metallic frames. In the first patent, the frame comprises spaced uprights, each upright being formed of an angle bar, one flange of which is doubled upon itself to form clamping lips, whereby the netting is secured. The upper and lower transverse bars extend across the space between the uprights and rest against the flanges thereof. These transverse bars are also doubled and have offset ends that are clamped between the lips of the uprights. The screen as thus constructed, is slidably mounted in the guide strips of a novel nature that are secured to the sides of the window frame.

In the second patent, there is disclosed guide strips formed of sheet metal and having outstanding screen-engaging hook portions. The screen frame consists of strips having their inner margins doubled over the doubled ends of the netting, the outer margins of the side strip being likewise doubled and interlocking with the hook portions of the strips.

David F. Staley, inventor: A. P. Staley, assignee, High Point, N. C. Pallet Jewel Setting Device.—One of the trying tasks of a jeweler is setting the jewels of watch pallets, considerable difficulty being experienced in positioning the same, while the securing shellac is soft and pliable. This invention is a very simple device, whereby jewels can be accurately set. The patent obtained is a broad one, but in the particular device shown a base disk is employed having a substantially flat face that constitutes the jewel support. A pallet-supporting stem is threaded through the disk and is movable above the jewel-supporting face. This stem has an arbor-receiving socket. A spring-pressed clamping device operates in opposition to the stem and has a portion provided with an arbor-receiving socket aligned with the socket of the stem. The improvement over the ordinary device is the adjustable stem, whereby the pallet can be supported at any distance away from the jewel-supporting face, and thus the jewel can be easily positioned.

Robert S. West, inventor: E. B. Wren, assignee, Talladega, Alabama. Ventilator.—The object of the invention is to provide a structure which can be set in the wall of a building or the like, can be applied to either old or new buildings, also railway cars, is readily adjustable to the different thicknesses of the walls, and is regulable to permit the entrance or exit of any amount of air desired. The ventilator comprises a pair of boxing sections having their adjacent ends

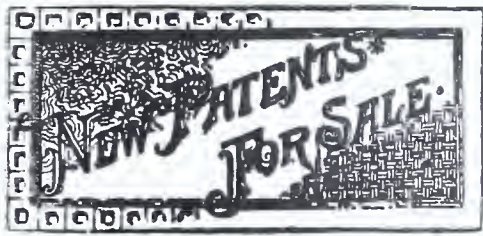
telescoped, with a wall extending across the inner end of the inner section and having openings. A damper slidably mounted on the wall is held in place by an upstanding flange secured to the wall and extending over the inner end, certain portions of the flange being offset to act as stops for the damper. A screen wall extends across the outer end of the outer section, and said outer end has an outstanding flange surrounding the same, the screen wall having its edges confined between the flange and section. A hood attached to the inner portion of the flange covers the screen wall and prevents the ingress of moisture through the ventilator.

Melvin Barber, Oklahoma City, Oklahoma. Tool Holder.—This device may be employed for various purposes, as, for instance, a bit stock, the principal object being to provide tool-holding jaws which are positively opened and closed upon the rotation of the shell, thus doing away with the necessity of actuating the spring for moving the jaws in one direction. The holder comprises a head having a tool-receiving socket and a pair of jaws pivoted between their ends on opposite sides of the socket, these jaws having tail-pieces. A sleeve surrounds the head and the jaws and has internal transversely disposed cam shaped ribs arranged to respectively engage the jaws and tail-pieces, so that when the sleeve is turned in one direction, certain of the ribs will engage the jaws and force them towards each other in order to clamp them upon a tool, while, when turned in the other direction, the other ribs will engage the tail-pieces and positively swing the jaws apart. Broad claims have been secured to this combination.

Louis Priest, Mt. Pleasant, Mich. Vehicle Body. Three patents.—The object of the invention, covered by the first patent, is to provide a structure of vehicle body that is much cheaper than that ordinarily employed, and is without the objectionable features of the more expensive bodies constructed of wood, which bodies cannot be prevented from checking and cracking. The walls or panels of the new body comprise a wooden core plate together with paper sheathing secured to the inner and outer faces of the same, and a metallic strip covering the upper edges of the core plate and sheathing, and having indented portions that engage with the sheathing and constitute fastening means for the strip. A novel form of joint or corner is also provided which cannot break upon the panel.

The second patent covers an invention along the same lines, the object being to provide a structure which can be manufactured at small cost and which has no fastening devices passed through the outer faces of the panels, so that said faces are entirely smooth and unbroken. Novel means are provided for fastening the panels to the sills and new corner posts with fasteners therefor are also employed. The panels are strengthened by the seat standard or frame to which said panels are secured by novel anchors.

The third patent more nearly approaches the second one, a novel corner joint being provided, wherein the abutting panels or walls are securely fastened together throughout their entire width so that said joint will not crack or break. At the same time, the necessity of plugs or similar devices on the outside is entirely eliminated. Another feature resides in means for fastening the seat posts in place, said means serving to strengthen the panels and the posts, thus constituting braces for both. Still another feature resides in simple means for fastening the sill, frame, and panels together without the necessity of passing any devices through the outer faces of the latter.



Advertisements inserted in this column for 15 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—Patent No. 783,862, dated Feb. 28, 1905. Hapgood adjustable folding bias measure. Circulars sent on application. Offers solicited. Address, Miss Alice L. Hapgood, Bellows Falls, Vt. oct

FOR SALE—Patent No. 793,170, dated June 27, 1905. Attachment for animal traps to lift the animal from the ground when caught. Will sell outright or lease on royalty. Address, Charles Baer, Mendon, Michigan. dec

FOR SALE—Patent recently issued. Almost every home uses from ten to fifty. Has no equal. Simple. No new machinery needed to manufacture same. A splendid investment. Address, E. B. Orr, East Liverpool, Ohio. dec

FOR SALE—Patent No. 799,729. Hay Press. Have pressed thirty bales an hour with one horse. Presses can be made for \$25, and will sell for double that amount. Address, Albert Hailey, Ruston, La. dec

FOR SALE—Patent No. 789,062, dated May 2, 1905. The most practical strainer for milk and other liquids that has been devised. Address, Arah W. Prescott, Manchester, N. H. dec

FOR SALE—Patent No. 796,071, Aug. 1, 1905. Poultry Folding Coop. Perfect folding done easy and quick. Will sell cheap or lease on royalty. Address, H. R. Franke, Breham, Texas, R. No. 8. dec

FOR SALE—Canadian Patent No. 89,283, also No. 94,802. Fence Stays. Simple and strong. Can be re-aided at an average cost of ten cents. Address, J. M. Sutherland, Sioux Falls, S. D. dec

FOR SALE—Patent No. 777,443, dated Dec. 13, 1904. Calf Weaner. Self-adjustable. Considered the best calf weaner on the market. Will sell outright, or state rights. Can be manufactured very cheap. Price for same O.K. Address, A. N. Sorenson Co., Gustave, S. D. dec

FOR SALE—Patent No. 794,870, dated July 18, 1905. Automatic Mail Box. Perfect in every detail. Operates independent of carrier. Is sure to meet the approval of carrier and patron. Will sell cheap. Address, G. E. Lofland, Urbana, Indiana. dec

FOR SALE—Patent No. 791,298. Ratchet Monkey Wrench. Can be set at any angle, to make right, left, or end wrench. Can turn up nut with ten-inch wrench in a five-inch circle. Will sell patent outright or assign the right to manufacture the invention. Address, Theo. F. Ayres, Allentown, Pa. dec

FOR SALE—Patent No. 672,897, dated August 30, 1901. Closure for mail sacks. Simple and durable, applicable to all types of sacks. Meets the wants of the postal officials. Address, J. H. Giltner, Muir, Ky. dec

FOR SALE—Canadian patent No. 91,335. An entirely new tensioning device for buck, hack-saws, etc. Tension relieved when not in use. Fits any saw; saves the frame. Will sell patent or lease on royalty. Address, D. R. Klassen, Gretna, Man, Canada. dec

FOR SALE—U. S. Patent No. 795,477. An improved rail joint, without nuts or bolts. The greatest invention and device ever brought before the public. Manufacturers of R. R. devices especially invited to correspond with the inventor. Address, C. M. Bennett, No. 1751 Main St., Wellsville, Ohio. dec

FOR SALE—U. S. Patent. Improvement on plows and heels sweeps. A plow and heel sweep that will not turn on heel bolt, making them self-supporting. Will save two-thirds of heel bolts now in use. Will sell outright or by states or on royalty plan. Address, Richard P. Rodgers, R. F. D. No. 3, Spartanburg, S. C. dec

FOR SALE—Patent No. 798,084 dated Aug. 29, 1905. Spindle oiler for looms. The greatest money saver for manufacturers ever invented. Address, Charles F. Thompson, Box 452, Oswego Falls Station, Fulton, N. Y. dec

FOR SALE—My U. S. and Canadian patent right on an improved commode. Fills a long felt want. Nothing to equal its convenience in sickness, or its usefulness to cripples. For additional information, address, Martin T. White, Chestnut Bluff, Crockett Co., Tenn. nov

FOR SALE—One-half interest in my patent. Combination Salt and Pepper Shaker. A winner. Need capital to push it. Will be used in every house in the country. Write for full particulars, address, E. C. Hurlbert, St. Johns, Oregon. nov

FOR SALE—State rights. Patent No. 764,307. Flower Pot Stand. Illinois reserved. This is a good side line for manufacturer. An article that is in place at any time of the year. For full particulars and cut, address, F. Scabill, Joliet, Illinois. nov

FOR SALE—U. S. Patent Safety Car Coupler, No. 788,982, dated May 2, 1905. Safe to uncouple and set to couple with one lift of lever. Can be made single for coaches and double automatic for freight cars of any capacity. Can uncouple moving or at stand still. Address, Wm. D. Worthington, Mays Lick, Ky. nov

FOR SALE—Patent Road Grader and Scraper. Easy on man or boy, and team, and can make road fast. Address, S. R. Johnson, Winston, Mo. nov

FOR SALE—Patent No. 762,061, dated June 7, 1904. Washing Machine. A good, reliable, and up-to-date washer. Address, Martin Jensen, L.B. No. 16, Barnard, Mo. nov

FOR SALE—Those wishing to buy a simple and inexpensive device, patented July 11, 1905. No. 794,448, a nut wrench, combining saw driver, and nail and bolt extractor with wire cutter added. Address, Bulus S. Boggs, Newry, S. C. nov

FOR SALE—Patent No. 792,931, dated June 20, 1905. Safety Pitchfork Holder. Neat and practicable. The first of its kind for the market. Sells to farmers, liverymen, and all who own pitchforks. A snap for novelty manufacturers. Address, Charles Schade, Cropsey, Illinois. nov

FOR SALE—The animal poke, known as the Anti-Creeper Button, patent No. 758,213. One of the best means to prevent cattle from creeping through barb and smooth wire fences. Address owner, O. Martinson, No. 1013 W. Douglas Avenue, Wichita, Kansas. nov

FOR SALE—Patent No. 788,707. Electric Light Tower for city lighting. The greatest invention and money-maker ever offered for sale. Will sell entire right, or on royalty. Make me an offer. Will demonstrate this device and give close figures as to how it retails. Address, S. T. Coverstone, Mt. Pleasant Michigan. nov

FOR SALE—The chance of your life to make money. New patent just issued; a useful household necessity. A fast seller, with big profits. Territory for sale. Come quick, Lock Box 172, Evergreen, Ala. nov

FOR SALE or on royalty—Patent No. 785,557, dated March 21, 1905. Porch and house swing. Takes up small floor space and does away with overhead frames. Will be a good seller. Address, William J. Kinback, Dunmore, Pa. oct

FOR SALE—U. S. Patent No. 786,651, and Canadian Patent No. 93,922. Belt Tightener. Should be everywhere where belts with buckles are used. Cheap for cash or on royalty. Address, Lanning & Tusia, Egan, S. D. oct

FOR SALE—Patents No. 774,693. Steering Apparatus for Ships, issued Nov. 8, 1904; and No. 755,928. Heat Regulator, March 29, 1904. Address, John Peterson, Lake George, N. Y. dec 05

FOR SALE—Patent No. 791,958 dated May 30, 1905. Umbrella Rack. To catch drippings and prevent wetting of floor. Simple and neat. Can be manufactured and sold cheaply. Useful in restaurants, theatres, offices, and stores. Address, Andrew Mikulich, No. 1010 7th Street, Sacramento, Cal. oct

WANTED.

WANTED—Steam users equip your engines with a Janicke Slide Valve. Address, Gus. A. Janicke, R.R. No. 2 Louisville, Ky. nov

WANTED—To buy ideas or patents for new articles to manufacture as a sideline. Will consider all propositions, but prefer articles commonly used by the populace. Briefly give full particulars. F. Rantville Company, Grand Rapids, Michigan oct

YOUR NAME, BUSINESS and ADDRESS on a neat Rubber Stamp with pad and ink mailed for 20c. I. A. Durham Co., Corry, Pa.

Drawings for Inventors.

If you want copies of the drawings of your patent, we can procure them at these prices:

12 copies, each sheet full size (8x13)	\$ 2.50
25 " " " " " "	3.50
50 " " " " " "	4.50
100 " " " " " "	7.00
500 " " " " " "	13.00
1000 " " " " " "	17.00

12 copies, each sheet reduced 1/3 (8 1/2 x 5 1/4)	\$1.25
25 " " " " " "	2.00
50 " " " " " "	3.00
100 " " " " " "	4.00
500 " " " " " "	7.50
1000 " " " " " "	9.00

These copies will be made by the photo-lithographic process, by the firm which formerly attended to the Patent Office work, and will be equally as good as the drawings accompanying your letters patent. Five hundred copies of your patent would cost you at least \$25. We can furnish 500 copies of the drawings, if contained on one sheet, for \$13 full size, or \$7.50, if reduced one-third, the same reduction as your letters patent drawings. Your valued orders solicited.

The Inventive Age Publishing Company,
WASHINGTON, D. C.

A NEW BOOK FOR INVENTORS. Patents and How to Make

Money out of Them.

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trademarks and copyrights. It also tells accurately How and What to Invent How to sell Inventions, Place them on the Market, Interest Capital in them, and to successfully Promote a Stock Company. It also contains an index of forms worth double the price of the book, to any one interested.

ELEGANTLY CLOTH BOUND.

GOLD STAMPED. \$1.00 Postpaid.

Sent with one subscription to AGE for \$1.75

Or will sell separately.

Address— The Inventive Age Pub. Co.,

918 F St., N. W. WASHINGTON, D. C.

Bee-Keepers

Should all subscribe to

THE AMERICAN BEE-KEEPER,

(Established 14 years.)

50 cents per year.)

The best magazine for beginners. We will send it **Six Months on Trial for 20 cents.** Sample copy free.

Address:

The American Bee-Keeper, Falconer, N.Y.

It is published by the

W. T. FALCONER, MFG. CO.

One of the oldest and largest makers of bee-keepers' supplies. Catalogue free.

Magic Rheumatic Cure!

It absolutely does cure. It is not a cheap remedy but it is a cheap cure. Mark the distinction! There are a thousand remedies to one cure. This is A CURE. It costs \$2.00 a bottle, and is worth \$20.00 to any sufferer. Sold only by our authorized agents or direct of us. Send for circular. Agents wanted.

MAGIC CURE CO.

R. 313-315 Dearborn St.

Chicago.



Attention Inventors!

LISTS OF MANUFACTURERS FURNISHED.

We have increased our facilities for furnishing lists of manufacturers, and now cover every line of industry.

Our charge for each list is one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad will be inserted three times.

THE INVENTIVE AGE PUBLISHING CO., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.....

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

Glass jar J. Paul
 Stove M. R. Lehman
 Stove L. Kahn
 Stove, Gas J. C. Foister
 Stove, Heating J. M. Stokoe

Issued September 12, 1905.

MECHANICAL PATENTS.

Abrasive compound H. L. Slager
 Air brake system for street railways R. C. Quin
 Animal shears J. K. Stewart
 Animal trap R. L. Kirk
 Animals from burning buildings. Device for leading E. E. Higgins et al
 Automatic switch W. Giles et al
 Axle box J. S. Taylor
 Babbitting device F. G. Head
 Balance springs. Apparatus for testing G. J. Gailey
 Baling machine, Cylindrical M. L. & U. F. Luebben
 Baling press M. L. Dean
 Bank coin separating A. B. Flagg
 Barber chairs. Paper holding attachment for J. E. Smith
 Barrel heading and hooping device E. C. Thorschmidt
 Basket construction D. H. Ryan
 Bath tub or other seat J. P. Eustis
 Bean sorting machine J. J. Jungers
 Bearing for upright crank shafts D. W. Marmon
 Bearing, Roller C. G. Deming
 Bearing, Roller R. F. Bower
 Bearings. Shaft sleeve for roller J. Kincaid
 Belt, Chain H. Armeson
 Berry box. Collapsible P. Heurich
 Binder, Temporary W. Strubing
 Binder, Temporary T. R. Eddy
 Bit W. C. Johnson
 Blind or shutter. Collapsible G. McMullen
 Blower R. W. Hamann
 Boat Life H. J. Hedderwick
 Boiler furnace, Steam J. F. Van Tuyl
 Boilers and other furnaces. Heater for H. A. Bradley
 Boilers. Soot cleaner for steam E. C. Fisher
 Bolster E. H. Benvers
 Bolt holder E. B. Curry
 Bookcase H. E. Hubbell
 Bottle capping machine R. L. Shriner
 Bottle casing A. B. Meyer
 Box D. Gray
 Bracelet H. R. Baker
 Brake staff J. T. Clark
 Brewing J. Schneible
 Brick kiln J. W. Reagan
 Brooder heater O. P. Shoemaker
 Buggy top C. Beville
 Building block mold. Artificial H. E. Maynard
 Building frame C. A. Dennis
 Building structure. Sheet metal I. Lee
 Bulkhead doors. Hydraulic mechanism for operating G. C. Salston
 Bundling machine R. C. Lowry et al
 Butter molding device E. J. Baril
 Button attaching machine W. E. Elliott
 Button setting machine W. E. Elliott
 Cabinet Baby M. A. Kuykendall
 Calculating machine C. Campbell, Jr
 Calendar Date J. R. Haggarty
 Can J. B. Conover
 Can W. A. Sexton
 Can opener T. A. Watrous
 Cane and stool. Combined P. Linder
 Cane mill J. P. Golden
 Cane mill. Two roll J. P. Golden
 Cap Bathing W. F. Pfeiffer
 Car bolster J. Green
 Car brake 2 pats. W. S. Washburn
 Car construction G. Gibbs
 Car coupling O. P. Callahan
 Car coupling centering device J. F. O'Connor
 Car door and fastener C. S. Bennett
 Car door fastener E. R. Greene
 Car draft rigging. Railway 2 pats. J. R. Mitchell
 Car fender A. Jobin
 Car loader for grain cars, &c. A. Yackee
 Car. Mining R. R. Hopkins
 Car safety device. Railway R. L. Ettinger
 Car step. Extension G. G. Comer
 Carbureter A. Gosse
 Carpenter's tool J. A. Larson et al
 Carpet cleaner. Pneumatic E. E. Overholt
 Carts. Flap for closing the lateral openings of dust H. Freise
 Cement tile mold J. Groscop
 Chain, Drive 2 pats. F. L. Morse
 Chain, Power F. L. Morse
 Chalk holder W. H. Welland
 Chasing mill H. J. Flood
 Check delivery apparatus V. Poduschka
 Churn M. M. McGregor et al
 Churn and ice cream freezer. Combined L. Franke
 Cigar perforator W. White
 Cigarette tubes. Mechanism for forming and inserting mouthpieces in W. M. Grunzner
 Circuit breaker. Vapor P. C. Hewitt
 Circuit changing apparatus M. S. Conner
 Circuit controller 2 pats. P. C. Hewitt
 Circuits. Controlling electric P. C. Hewitt
 Cistern mold or former H. R. Kuhn
 Clay treating furnace D. B. Williams
 Clinometrical gage A. M. Johnson
 Clutch, Hydraulic G. Sparks
 Cock, Drain R. B. Swinny
 Cock, Gage R. B. Swinny
 Coin delivering device for cash indicators E. Janik
 Coin holding and delivering machine J. W. Meaker
 Coin tray J. W. Meaker
 Collar C. W. T. Davies
 Collar Horse G. E. Du Bois
 Column, girder, and beam. Metal O. G. Franks
 Combination wrench H. A. Corwin
 Commode A. Turner
 Concrete building blocks. Machine for manufacturing hollow I. W. Miller
 Concrete fence post L. H. Benedict
 Concrete fence post mold J. Bolton
 Concrete reinforcing means W. Gabriel
 Confectionery mixing machine G. Pratts

Conveying and hoisting various materials. Device for N. H. Nelson
 Cooker, Steam W. F. Heidrich
 Cork extractor S. Davis
 Corkscrew H. Sturm
 Corner shield and retaining means therefor C. H. Anderson
 Cotton gin R. E. Wilson
 Crank J. G. Heaslet
 Crushing mill L. B. Lehmann
 Cultivator J. C. Johnston
 Cultivator W. O. Walton
 Cultivator bars. Adjustable device for W. L. Gouldin
 Cultivator or sulky plow. Wheel S. F. Vance
 Cuspidor R. F. Reagan
 Cuspidor carrier W. B. Tschanner et al
 Cutting die D. T. Clemons
 Dam flash board J. E. Jenkins
 Dashboard holder J. W. Yochem
 Derrick. Portable W. C. Booz et al
 Die stock J. J. Delephant
 Disk drill. Double H. J. Case
 Display package A. R. L. Dohme
 Distilling apparatus. Wood H. B. Williams
 Door Grain A. B. Dickie
 Door stop A. T. Learned
 Doubletree W. A. Tinsley
 Doubletree carrier W. M. Folkner et al
 Draft apparatus. Induced R. W. Hamann
 Draft gear 2 pats. H. C. Prieb
 Drawing board. Adjustable W. Green
 Dredge. Suction L. S. Parker
 Drier B. E. Bechtel
 Dye lake and making same. Azo C. Immerheiser
 Ear ring M. & C. Huber
 Electric furnace. Revolving E. Stassano
 Electric heaters. Cut out for J. Harden
 Electric motors. Motor suspension for E. D. Priest
 Electric power. Pneumatic or hydraulic transmission of H. Kowsky
 Electrical attachment plug B. E. Salisbury
 Electrically controlled motor H. Bezer
 Electrolytic apparatus and electrodes therefor C. Kellner
 Electroplating apparatus L. Potthoff
 Elevator C. W. Levalley
 Elevator brake A. W. Krusee
 Elevator bucket or tank. Water D. J. O'Donnell
 Engine attachment. Explosive W. B. Hayden
 Engine cage. Steam J. I. Bryant
 Engine speed regulator. Explosion G. Duffing
 Engine starting means. Explosive A. P. Brush
 Engines and starting switches therefor. Electrical sparking ignition system for gas V. G. Apple
 Engines. Circuit breaker for explosive R. M. Lovejoy
 Engines. Gas generator for explosive A. W. Jones
 Envelop and letter sheet. Combined C. T. Paden
 Eraser cleaner A. H. Strup et al
 Eraser holder J. C. St. John
 Exerciser E. Roland
 Explosive engine W. E. Collier
 Extractor W. H. Teas
 Eyeglass and eyeglass holder H. F. Brown
 Eyeglass holder A. B. Robbins
 Eyelets with flexible material. Method and apparatus for covering P. R. Glass
 Faucet. Oil can S. J. Cordner
 Feeding device A. J. Gardner
 Fence J. H. Pisor
 Fence post C. A. Spencer
 Fence post and securing device G. W. Drewke
 Fence stapling machine. Wire H. Ragsdale
 Fence wire clamp C. C. Hoke et al
 Fertilizer distributor W. A. Mitchell
 Filter drum E. Fullner
 Filter. Press C. C. Thompson
 Filter scraper. Water M. N. Lynn
 Filtering apparatus J. N. McClintock
 Fire resisting curtains. Roller for 2 pats. E. H. McCloud
 Firearm cleaning rod W. L. Marble et al
 Fishing reel spool W. Shakespeare, Jr
 Flange for rods J. S. Goldberg
 Flax Retting C. Vansteenkiste et al
 Floor W. N. Wight
 Floor construction 2 pats. G. Gibbs
 Flower stand T. S. Sprague
 Fluid motion indicator A. W. King
 Fluid pressure apparatus J. P. Coleman
 Folding box A. L. Bradley
 Fluid clipper E. P. Steffa
 Fuel balls, briquets, &c. Press for the manufacture of H. J. Debauche
 Furnace and heater W. H. Drake
 Furnaces. Coking attachment for steam boiler T. J. Tiller
 Furniture. Corner J. Nichols
 Furniture support B. M. Wonders
 Game indicator C. McNabb
 Garment form L. C. Schmidt
 Gas burner W. M. Welch
 Gas cut off for Bunsen tubes 2 pats. W. S. Stapley
 Gas generators. Carbide holder for acetylene O. Parker
 Gas. Producing B. E. Eldred
 Gas purifying apparatus H. Boyd
 Gaseous mixture for extinguishing fire, killing insects, &c. Apparatus for the production and distribution of R. Marot
 Gear. Transmission 2 pats. O. W. Davis
 Gear. Variable speed and reversing W. S. Austin
 Gearing for portable tools W. N. Woodruff
 Gearing. Variable speed J. & A. W. Prentice
 Gilders, tools. Pressure pad for W. H. Coe
 Glass grinding apparatus A. J. Sanford
 Glass grinding machine A. J. Sanford
 Glass pressing machine N. W. Hartman
 Gloves and mittens. Tip for J. G. Davy
 Glue. Casein F. X. Govers
 Gold from its ores. Extracting F. W. Dupre
 Gold saving machine J. B. Holmes
 Grain conveyer J. F. White
 Grain elevating device N. H. Nelson
 Grain grinding machine. Friction H. G. Krasky
 Gramophone C. Hilgenburg
 Gun barrels. Means for cooling H. Lehmann
 Gun sighting apparatus C. P. E. Schneider

Guns. Recoil pad for A. T. Duncan
 Hame fastener J. H. Wilson
 Hammer. Drop M. Merrill
 Hammer. Foot power G. E. & A. M. Williams
 Hammer. Power H. Vigneault
 Harness. Single trace G. V. Beckman
 Harrow O. D. Lent
 Harrow. Combined spike and spring tooth J. R. Taylor
 Harrow. Disk A. Lindgren
 Harvester E. A. Maingnet
 Harvester bunching device. Bean W. H. Wilder
 Hat fastener J. J. Smith
 Hat holder G. Davis
 Hay elevator N. H. Nelson
 Hay fork S. W. Gates
 Hay rack fixture W. F. Jacobs
 Heater C. E. McPherson
 Heating or cooling apparatus. Surface A. W. Brewtall
 Hinge C. S. Stevens
 Hinge S. Tripp
 Hinge, door, check and closer. Combined floor T. H. Jordan
 Hitch. Rope M. E. Boddy
 Holding device M. T. La Valle
 Hook and eye L. F. Gosnell
 Horseshoe J. T. Hufty
 Horseshoe calk J. S. Magoon, Jr
 Horseshoes. Overshoe for A. Smith
 Hose coupling. Train I. I. Caskey
 Hose supporter F. W. Lowe
 Hydraulic pressure machine R. D. Fildes
 Illusion apparatus R. B. Smith
 Incubator C. F. Bauer
 Incubator nest J. U. Moore
 Iron or steel. Cementing C. C. Davis
 Iron sponge. Producing wrought D. Reynolds
 Ironwork structure W. E. Williams
 Jar closure clamp W. H. Richards
 Jar closure tool F. R. Rice
 Journal box lid G. A. Woodman
 Junction box L. H. Nielsen
 Kilus. Car pushing mechanism for tunnel A. A. Gery
 Knitting machine take up A. H. Obenhoff et al
 Lacing hook. Shoe H. J. Griswold
 Ladder A. A. Smith
 Ladder. Double jointed extension F. B. Hubbard
 Ladder. Store service S. B. Martin
 Lamp having second class conductors. Electric incandescent W. Boehm
 Lamp socket J. C. Tourner
 Lamp Vapor C. E. Trehwella
 Lamps. Starting apparatus for vapor electric C. J. Coleman
 Lap robe and foot protector. Combined H. Nielson
 Latch. Automatic H. C. Umpleby
 Laundries. Shipping hamper for T. L. Metcalfe
 Lawn cutter and roller. Motor propelled W. P. Anthony
 Leaf holder T. R. Eddy
 Lifting jack J. M. Reid
 Lighting system 2 pats. W. L. Bliss
 Lightning arrester P. C. Hewitt
 Lightning conductor support fastener C. Bajchr
 Line holding device L. Palmer
 Linotype machines. Compound spacer for J. M. Bryant
 Linotype machines. Motor attachment for M. W. Morehouse
 Liquid fuel burner T. J. Colbert
 Loading and unloading machine S. Munson
 Lock F. S. Aliano
 Lock J. A. Horne
 Lock W. W. Warren
 Loom comb board motion W. Wattie
 Loom. Filling replenishing E. S. Stimpson
 Loom. Filling replenishing E. S. Wood
 Loom. Filling replenishing T. W. Tillman et al
 Loom. Pile fabric T. B. Dornan et al
 Low water alarm J. Lotius
 Lubricator R. H. Elkins
 Lubricator T. W. Smith
 Machine wrench W. E. Eiter
 Magneto electric generator R. C. Crouch et al
 Mail bag fastener G. Bain et al
 Malt drums. Control arrangement for E. Cluss
 Marble shooter J. M. Cutler
 Medical and surgical vibrator H. W. Shonard
 Metal on non-metallic bodies. Depositing C. F. Blackledge
 Metal. Purifying tantalum W. V. Bolton
 Metal rolls. Apparatus for heating B. H. Doll
 Metallic leaf in right lines. Machine for depositing W. H. Coe
 Micrometer height gage C. D. Clark
 Milling machine W. J. Parkinson
 Mine's washing pan J. Johansen
 Moistener and sealer. Envelop P. F. Cox
 Molding machine G. W. Packer
 Mop wringer A. F. Livendahl
 Motor regulator. Hydraulic A. Johnson
 Motor reversing mechanism A. L. Cushman
 Motor starter C. E. Asbury
 Mower. Lawn G. W. Gage et al
 Music roll perforating device H. P. Ball
 Muzzle protector J. L. Whinery
 Nail claw L. Jollist
 Paper fastener E. C. Andrews
 Paper. Manufacture of tobacco like H. Apel
 Paper rolls and cores. Shaft for winding J. H. Baker
 Pavement G. Moebis
 Pavement Bituminous F. J. Warren
 Pen and pencil holder. Fountain F. Duryea
 Pen. Fountain J. F. Betzler
 Pencil and lead pencil holder. Slate G. Jorgensen
 Penholder R. Kelsey
 Phonograph G. Webster
 Phonograph. Sound amplifier R. B. Smith
 Photographic plate developing apparatus J. D. Lyon
 Photographic plate envelop J. D. Lyon
 Photographic printing frame L. Renkel
 Piano action flange C. A. Lambert
 Pianos and organs. Hinged key slip for F. Peterson

Picture frame J. Babst
 Pigments. Making paint J. A. Titzel Sr
 Pile driver A. A. Raymond
 Pipe coupling F. Robinson
 Pipe coupling J. W. Linze, Jr
 Pipe cutter, &c W. A. Schenck
 Pipe making machine. Pulp S. R. Bradley, Jr
 Pipe supporting bracket M. C. Rosenfeld
 Pipe wrench M. D. Gill et al
 Plane. Carpenter's J. Jett
 Planter. Corn F. Fisher
 Planter, Seed T. H. Jones
 Pliers. Apparatus for holding D. W. Barrow
 Plow R. L. Killingsworth
 Plow J. B. Hunter
 Plow J. H. Kennebrew
 Plow. Sulky W. L. Paul
 Pole. Conduit F. Stevens
 Post hole digger C. Butcher
 Potato bug destroying machine W. C. Klunder et al
 Power transmission system V. Martinetto
 Printer's block. Adjustable E. L. Wilson
 Printing. Demonstration picture for multi-colored B. Ludwig
 Printing frame E. R. Petrie
 Printing plate wiper F. E. Blaisdell
 Printing presses. Vacuum feed controlling device for A. W. Massey
 Printing. Register hook for color plate B. Ludwig
 Pulleys, &c. Casing for H. Hansen
 Pulp screens. Stock distributor for centrifugal J. H. Baker et al
 Pump C. F. A. len
 Pump F. B. Allen
 Pump controlling device. Feed C. E. Squires
 Pump for bore holes and the like. Hydraulic W. Wolski
 Pump. Force feed lubricating E. Meely
 Pump motor. Fluid pressure F. Sage
 Pump. Steam driven air W. Weir
 Pumping engine F. Sade
 Pumping engine P. F. Oddie
 Rack cutting machine O. J. Beale
 Radiator B. A. Way
 Radiator valve J. F. Winkler
 Rail chair A. Grala
 Rail cover. Third W. G. Taylor
 Rail joint J. A. B. Wilson et al
 Rail joint. Interlocking H. T. Steinecke
 Rail joint of the scarf type M. C. Catherman
 Railway construction H. W. Case et al
 Railway crossing R. H. Pierce et al
 Railway joint J. F. Cox
 Railway rail I. A. Boomer et al
 Railway rail stay H. H. Sonnenburg
 Railway tie. Metallic U. G. Potts
 Railway traffic controlling apparatus. Locking device for L. Griffith
 Rebounding wheel F. J. A. Mabut
 Reclining chair. Adjustable J. F. Wilmore et al
 Recording and alarm system. Watchman's A. E. Waggoner
 Refrigerator drip pan C. E. Smith
 Register or counter A. J. Gillespie
 Regulator W. Wadsworth
 Relay W. W. Coeman
 Releasing device. Automatic T. C. Dil
 Resaw. Horizontal band H. G. Dittbenner
 Resaw mill dog A. B. McClintock
 Resaws. Feed device for horizontal band H. G. Dittbenner
 Retort G. Keithum
 Rifle. Saloon magazine F. Linner
 Rifles and other small arms. Sight for L. G. P. Thring
 Roasting furnace F. Klepeiko
 Rock drill. Pneumatic A. P. Schmucker
 Rolling mill roll A. Ridd
 Roofings. Metal plate with fastening ribs and outwardly bent longer edges for lining O. & W. Neumeister
 Root cutter A. Maguin
 Rosette A. P. Seymour
 Rotary engine S. N. Elliott
 Rubber fabric C. H. Gray et al
 Sanding machine H. L. Bornman
 Saw mills. Upper saw guide for band H. G. Dittbenner
 Scraper. Road R. M. Milling
 Screen J. Stork
 Seal R. C. Pleiss
 Seal C. C. McCormick
 Sealing bottles, jars, &c. Cap or closure for W. H. Dodge
 Sealing jar for preserving various articles, such as food, &c. C. C. Hovey
 Seams of sheet metal bodies. Machine for forming the side A. A. Slaysman, Jr
 Sewer pipe and manhole. Combined F. A. Lovejoy
 Sewing machine drop table W. Grothe
 Sewing machine loop taker driving mechanism J. O. Huffman
 Sewing machine. Rotary hook M. Hemleb
 Sewing machine treadle J. C. Brompton et al
 Shade roller bracket A. Heisterkamp
 Shaft attachment H. D. Aupke
 Sheet metal. Machine for expanding slitted O. Bradford
 Sheets. Controlling mechanism for machines acting on F. L. Cross
 Shepherd's crook. Reissue F. Biss
 Shingling stool J. L. Neice
 Shoe H. C. Welch
 Shoe. Studding D. W. McNaughton
 Skirt stretcher G. F. Knollmann
 Slicer. Fruit and vegetable J. E. Walston
 Sliding gate J. O. Rodgers
 Snow plow. Rotary S. H. Dunning
 Socket. Regulating L. T. Bogia, Jr
 Soda fountain draft tubes. Bottle charging attachment for F. H. Lippincott
 Soldering clamp. Spectacle W. E. Fenstermacher
 Spacing table A. Clarke
 Speculum C. D. Tracey
 Spike J. I. Bond
 Spindles. Bobbin clatching means for rotating J. V. Cuniff
 Spinning or twisting apparatus. W. T. Carroll
 Spoons, forks, and the like. Attachment for J. F. Moore
 Spot or faster setting implement C. A. Henry
 Squares. Leveling attachment to J. A. Howewell
 Stacker. Swinging 3 pats. N. Weiler
 Stalk cutter A. W. Weatherly
 Stalk cutter and roller. Combined J. J. Nohr

Stamp and other mills. Feeder for C. C. Hamill
Stamp mills. Ore feeding mechanism of pneu-
matic J. J. R. Smythe
Steam boiler S. A. Reeve
Steam boiler J. R. Brown
Steam generator J. C. Parker
Steam generator 3 pats. W. H. Shafer
Steam generator W. H. Sutcliffe et al
Steam shovel G. W. King
Steam trap J. Smith
Stone blocks. Machine for making artificial
J. Jaeger
Stone mold. Artificial J. Pfeiffer
Stool. Folding camp E. W. Cornell
Stove. Combined heating and cooking
L. C. Pederson
Street sweeper and collector. Combined
J. T. Whitmore
Stroke indicator T. C. Dill
Sucker rod coupling F. L. Bennett
Surgical ligatures. Package for R. W. Johnson
Suspenders J. W. Heilbron
Swing and lounge. Combined J. H. Miner
Switch A. Benassy
Swivel. Hydraulic L. B. Embry
Syringe F. C. Barnes
Tanning extracts. Making R. Lepetit et al
Taper rolling machine J. M. Davidson
Teaching device. Music E. A. Fletcher-Copp
Teddler H. C. Richmond
Telegraph transmitter W. H. Leonard et al
Telegraphy 3 pats. S. F. Jones
Telegraphy B. Gati
Telegraphy. Multiplex G. L. Hogan
Telegraphy. Sextuplex S. F. Jones
Telephone exchange switching apparatus
C. M. Hedman
Telephone exchanges. Calling device for auto-
matic F. A. Lundquist et al
Telephone receiver casing A. R. Thollander
Telephone relay B. Gati
Telephone systems. Electric generator for
E. B. Willix et al
Tent. Cottage H. W. Stroud
Thill coupling M. E. Covey
Ticket. Railway and other F. B. Waite
Tiles. Block form for forming J. Rapp, Jr
Tiles. Interlocking J. H. Perrin
Tire clamping device. Pneumatic
M. C. Schweinert et al
Tire. Pneumatic T. B. Jeffery
Tire shrinking machine. Cold H. Mayers
Tire Wheel B. T. L. Thomson
Tires. Detachable securing means for
J. Baker
Tobacco pipe A. C. Duncan
Tongue. Convertible vehicle S. V. Pllice
Tools. Air feed for pneumatic
F. L. Slocum
Tooth facing. Porcelain L. L. Poston
Traction apparatus N. Hiss et al
Train lighting system 12 pats. W. L. Bliss
Transformer W. L. Waters
Translucent fabric E. H. Augier
Transmitter arm J. A. Birsfield
Transmitting mechanism F. S. Keyes
Tree protector C. A. Holt et al
Trolley W. S. Ticheuor
Trolley catcher and retriever C. F. Wilson
Truck R. J. Edwards
Truck. Brick C. M. Steele
Truck. Car H. M. Pfleger et al
Truck. Car R. J. Edwards
Truck. Car G. Lindenthal
Truck for aerial railways E. Rost
Tumblers and like receptacles. Support for
A. H. Hope
Turbine. Compound steam C. V. Kerr
Turbine. Elastic fluid reissue C. G. Curtis
Turbine locomotive H. Lentz
Twister stop motion Yarn J. L. Potts
Type casting machine F. W. Hews
Type writing machine H. E. Curtis
Type writing machine S. T. Smith
Type writing machine G. B. Webb
Type writing machine tabulating attachment
T. Oliver
Type writing machine type cleaning attach-
ment J. H. Ladd
Type writing machine type cleaning attach-
ment R. C. Hammill
Umbrellas &c. Safety retaining device for
F. J. M. Hilbig
Uncoupling device J. R. Carmer
Unicycle J. Mattson
Valve for hydrants Independent nozzle
J. T. Lynch
Valve gear G. W. King et al
Valve Reversing B. Smartt
Valve Rotary J. D. Baidick
Varnish gum. Making A. Kronstein
Vault light construction R. H. Old et al
Vault mold T. F. Gaebler
Vaults, &c. Cover and door for D. Clerico
Vehicle. Motor W. F. Smith
Vehicle. Self propelled H. Lempe
Vehicle top support S. M. Buchanan
Vehicles and cycles Antiskidding device for
H. S. Eyre
Vehicles intended for air, water and land loco-
motion. Propelling device for H. Hoernes
Vending machine L. C. Spooner
Vending machines. Coin controlled fraud pre-
venting device for A. D. Grover
Voting machine W. J. Wilkinson
Waffle iron P. A. Hormann
Wagon. Dumping P. Blatt
Wagon. Crane device for T. M. Hackett
Waist L. S. Biggar
Washboiler cover A. R. Thomas
Washing machine A. W. Smith
Watch. Stem winding and setting W. E. Porter
Water. Apparatus for electrically purifying
J. F. Lester
Water closet chair and flush tank. Sanitary
W. D. Thompson et al
Weed exterminating tool J. W. Shaffer
Weeder and cultivator L. L. Sidwell
Wells. Portable rig for pulling oil
F. W. Pennell
Windmill E. E. Gould
Window C. Chaban
Window frame A. Weiser
Wire drawing machine H. L. Thompson
Wood. Grooving and tonguing cutter for
A. A. Westman
Wrench W. N. Bee
Wrench H. Aue
Yoke. Pole W. E. Cole

DESIGNS.

Badge R. O. Bolt
Badge G. H. Baker
Badge or pendant W. D. Murray et al
Badge or similar article W. B. Carruthers
Brushes or similar articles. Back for
T. W. Foster
Button hooks or similar articles. Handle for
T. W. Foster
Clock frame 2 pats. S. M. Lawson
Drinking vessel A. Pick
Glass. Sheet W. Buttler
Hat pin S. G. Mandalian
Lavatory W. J. Kohler
Pedestal C. S. Kohler
Pens and pencils. Pocket safety clip for foun-
tain M. H. Duryea
Pot for table use J. H. Gault
Spoons, forks, or similar articles. Handle for
F. Habensack
Vizor or eye shade mask P. F. Volland

Issued September 19, 1905.

MECHANICAL PATENTS.

Acid and making same. Benzoyl-salicylic
E. Bloch
Advertising device A. A. Warren
Amusement device A. Debatista
Ankylosis of the knee. Apparatus for treat-
ing R. R. Norwood
Annealing furnace A. Ridd
Antisiphon trap J. J. Smith
Auger. Square F. Bryan
Automobile steering mechanism C. O. Barnes
Automobile tire covering R. Nathan
Automobiles. Control of H. Lempe
Bag holder J. C. Downing
Bale tie D. Witt et al
Bailing press A. Hailey
Baling press F. A. Lake
Baling press L. L. Parr
Balls. Machine for winding the cores for golf
J. P. Cochrane et al
Band brake A. Grieves
Barrage J. A. Boyce
Battery grid or element. Secondary
W. Gardiner
Bedstead bed rail fastener. Metallic J. Nelson
Belt shifter I. S. Newton
Belt shifter. Automatic J. F. Oehard
Bending tool X. Kern
Bicycle. Water Z. Payette
Binder. Temporary T. Lee
Binding posts. Connecting wire to W. Mills
Block signal system H. N. Sporborg
Block signal system H. E. White
Blocking and cultivating machine
T. McEwing
Blotter. Ruling J. L. Wood
Boat. Submarine torpedo J. J. Harpain
Boats. Buffer for F. Grimm
Boats. Means of escape from sunken sub-
marine and similar F. T. Cable et al
Boiler water heater J. Miller
Book back making apparatus A. J. Kroencke
Book mark G. S. Budge
Book support G. Evander
Boot E. G. Stearns
Boring drill H. J. Blaske
Bottle cap H. A. Oberholtzer
Bottle. Mucilage F. W. Martin
Bottle. Nursing E. H. Simonds
Bottle protector H. F. Thompson
Bottle or vessel. Non refillable
T. K. Crossley et al
Bottle stopper fastener J. A. Astarita
Box R. G. Inwood et al
Brake mechanism W. J. Miller
Brick handling machine A. Dupuy
Broiler. Gas S. T. Willson
Building block J. S. Culley
Building construction 2 pats. G. F. Fisher
Buildings. Traveling attachment for
T. McConnell
Bung. Locking G. W. Phillips
Button. Cuff H. L. Mainland
Cabinet E. F. Fischer
Cabinet. Kitchen J. F. Wilmot
Cable head hanger F. M. Winn
Camera. Photographic A. D. Davis
Can filling or other machines. Can feed de-
vice for C. H. Ayars
Cap making machine R. H. Beck et al
Car brake T. A. Steele
Car construction. Metallic T. R. Brown
Car coupling C. B. Botkin
Car coupling. Slag B. H. Bennetts et al
Car door. Sliding I. K. Walton
Car draft rigging. Railway J. F. O'Connor
Car. Dump 2 pats. F. S. Ingoldsby
Car fender J. W. Seibert
Car Freight H. S. Hart
Car grain door S. R. Helck
Car. Railway freight W. A. Holbrook
Car loading and unloading appliance. Stock
W. J. Rav
Car. Railway freight W. A. Holbrook
Car wheel J. R. Davies
Car wheel Steel F. W. Hudson
Cars. System of ventilation for railway
L. J. Harris
Cars. Tandem spring draft rigging for rail-
way J. F. O'Connor
Cartons. Device for cutting, scoring, folding
and pasting E. A. L. Roehl
Carving machine I. H. Behee
Cement building block. Hollow H. D. Brooke
Cement molding machines. Pattern frame for
J. B. Petrie
Checkrein attachment L. Moretti
Checkrein loop retainer V. Miller
Cheese J. R. Meyers
Chemical apparatus J. D. Genese
Chuck and tools therefor. Tool J. Gessert
Chuck. Drill T. S. Carroll
Churn L. W. Schomberg
Cigar bunches. Machine for forming, binding,
and storing A. S. Koch
Cigar cutter and match holding and delivering
device. Combined R. E. Jack
Circuit breakers. Electromagnetic lock for
automatic J. D. Hilliard, Jr
Clamp G. M. Henry
Clock. Calendar W. S. Shirk
Clothes sprinkler H. G. Smith

Clutch. Electromagnetic H. H. Cutler
Coating machine G. P. Reuhl
Coherer W. W. Massie
Coin actuated mechanism E. Richter
Collar protector O. L. Harries
Comb G. N. Steere
Concrete flume W. L. Church
Concrete mold J. D. Truss
Concrete wall mold A. S. Merriett
Conveyer L. Abraham
Conveyer C. W. Levalley
Conveyer C. Fliun
Cooker. Steam W. H. Brown et al
Cooling apparatus W. B. Albright
Cord adjuster for holding surplus cord
H. C. Ayres
Core forming apparatus J. F. Hay
Cores. Making J. F. Hay
Cotton chopper and harrow G. W. Oglesby et al
Cotton picking machine G. A. Lowry
Counterpane O. Steiner
Cream treating machine O. H. Nebel et al
Crop gathering and loading machine
J. A. Berthelot
Cuff holder M. P. Zindorf
Cultivator C. De Freese
Cultivator. Corn F. Hoskovec et al
Cutting and raking implement. Combined
E. S. Regnier
Cutting implement H. F. Nehr
Dam W. L. Church
Dam. Waterworks W. L. Church
Dams. Flashboard holder for W. L. Church
Dasher I. M. Murphy
Dental chair F. E. Case
Dental crown or plate swaging device
J. A. Reid
Dental device W. S. Filley
Dental tool A. W. Feltmann
Distillation of wood, &c. Basket for
J. A. Mathieu
Door fastener G. W. Niles
Door Grain J. W. Boling
Door lock and latch. Combined C. E. Stover
Door stay E. Anderson
Doubletree hanger M. Kurz
Doug breaker P. F. Carroll
Drill socket G. A. Sager
Driving mechanism. Variable speed
H. A. Coombs
Drum. Heating J. K. Mohler
Ear trumpet G. G. Lewis
Earthenware pipes. Machine for making
H. J. & A. Coulthurst et al
Edge iron S. R. Bailey
Electric contact device R. W. Farrington
Electric current regulator P. Kennedy
Electric wiring. Conduit for H. C. Ayres
Electrical conductor conduit H. C. Ayres
Electrical conductors. Device for coiling and
uncoiling H. C. Ayres
Electrical conduit cover H. C. Ayres
Electrical indicator H. Lempe
Electrical instruments. Means for supporting
movable elements of E. Hartmann
Electrical wiring. Angular conduit for
H. C. Ayres
Electrolier. Adjustable H. C. Ayres
Electrolytic apparatus G. L. Meaker
Elevator lock R. J. Ronio
End board. Wagon F. S. Converse
Engine reversing gear. Steam B. H. Brown
Engine vaporizer. Hydrocarbon
F. I. Hitchcock
Envelop band cutting machine E. A. Claus
Excavating bucket H. S. Atkinson
Excavator J. O'Connor
Explosive E. Steele
Explosive. Nitroglycerin M. Bielefeldt
Eyeglasses, &c. Holder for lenses of
reissue G. H. Winslow
Eyelet and the like W. G. Murphy
Eyelets and the like. Manufacture of
W. G. Murphy
Fan motor J. F. Thunell
Faucet C. F. Beresford
Feed water regulator J. N. Spanabel et al
Fence post E. B. Gaylord et al
Fence post C. Warneke
Fencing tie. Wire J. J. Morse
File. Letter C. A. Gruenewald
Filing drawer. Vertical F. L. G. Straubel
Filter W. H. Little
Filter 2 pats. J. W. Hill
Filtering apparatus J. B. Greer
Fire extinguisher. Chemical H. Mikorey
Firearm. Automatic A. O. von Augetz
Fish rod joint or union C. A. Tredwell
Fishing gear O. Miller
Flanging machine gage C. B. Fairweather
Fountain D. D. Lambert
Friction top can J. M. Young et al
Frogless switch S. A. Renshaw
Fuse. Electric H. N. Snyder et al
Game apparatus D. Fitzpatrick
Game apparatus I. M. Parkey
Game apparatus J. W. Heisman
Garment clasp C. B. Hoy et al
Garment hanger J. L. Muller
Gas burner J. W. Farnoff
Gas burner J. P. B. Sadtler
Gas burner. Incandescent J. Hudler
Gas burner safety attachment O. Friedrich
Gate D. W. Bromley
Gate P. H. Connolly
Gear. Friction draft G. Westinghouse
Gearing J. G. Edgar, Jr
Glass holding device. Beveled G. H. Clark
Glove. Boxing H. A. Baker
Governor J. A. Giles
Grader and ditcher. Land A. T. Reed
Grader Elevating L. V. Brophy
Grain crib E. F. Powell et al
Grain drill H. J. Case
Grain drill S. E. Roby et al
Grain drying apparatus A. R. Hagner
Graphophone modulator F. N. Foster
Grinding and polishing cultivator disks and
rolling colters. Machine for
C. Youngstrom
Grinding machine W. R. Fox
Grooming device F. K. Moseley
Guano Making L. Weber
Gun lock. Single trigger A. D. Houldcroft
Gun. Machine J. B. Boeger
Hammer. Drop B. J. Brett
Harrow C. W. Boland
Harvester and husker. Corn P. Fleming
Harvester. Corn E. J. Muudale

Harvester. Corn J. L. Gonneue
Harvester. Potato N. Loutam
Hay carrier W. Loudon
Hay elevator and stacker J. M. Eue
Hay press block dropper J. L. Hosack
Hay racks. Means for connecting the mem-
bers of H. L. Ferris
Head setter E. Moxham
Headlight. Dash electric J. Kirby, Jr
Heel cushion F. Reichardt
Hinge. Spring K. V. Clark
Hook and eye A. W. Wuer
Horseshoe J. R. Holland
Hose coupling J. Metzger
Ice cream mold W. W. Cassel et al
Identification plate D. MacLellan
Ink well frame and holder. Combined
J. H. Brady
Insect catching device M. Terletzky
Insulating material D. W. Sharkey
Insulator E. J. Foreman
Internal combustion turbo motor C. Lemale
Journal bearing C. B. Young
Journal box J. E. Erickson
Kettle cover. Tea W. W. Cram
Kneader and mixer. Dough A. R. Pritchard
Knob and bell. Combined door T. West
Ladder support J. G. Ellinger
Lantern A. C. Dudley
Lard cooling machine J. C. Collins
Lead carbonates. Making A. Wulze
Ledgers. Automatic forwarding sheet for
loose leaf J. L. Byus
Linotype machine J. Keenan
Linotype machine E. E. Paddock
Linotype machine J. R. Rogers
Liquid heater and strainer W. J. Morrison
Lock J. Oleschak
Lock T. H. Speigelmire
Log piling machine J. T. McGarrity
Loom take up mechanism O. W. Schaum
Mandrel. Expandable and contractible
P. J. Masterson
Massage appliance J. G. Doughty et al
Massage device J. B. Wells
Match box or other receptacle A. F. Fuller
Match dispensing box F. K. Huber
Matches. Machine for the manufacture of
C. Wolf
Metal. Machine for manufacturing expanded
L. E. Curtis
Metal sawing machine. Cold C. A. Jungst
Metallic mat B. Londkowski
Metallic strip, wire, rods, &c. Production of
S. O. Cowper-Coles
Metallic tie C. A. Frye
Metalliferous material. Nodule of
T. C. King
Metallurgical furnace P. A. Mackay
Milk can H. E. Dill
Milk cooler J. S. Parrott
Mill J. Cihalewski
Mining apparatus Sulfur H. Frasch
Mining drill J. Tonge, Jr
Mining sulfur H. Frasch
Model. Demonstrating C. Melrose
Moistener and sealer. Envelop
F. J. Froehley
Molding machine C. W. Bradley et al
Molding machine W. E. Clifford
Molding machine P. Savard
Moldings. Finishing G. P. Reuhl
Motion transmitting device A. E. Hauser
Multiple switch H. H. Cutler
Music rack and turner. Combined
H. L. Abraham
Necklaces, &c. Snap catch for O. L. Henerlau
Net and rein guard. Combined J. A. Dulin
Nut. Lock T. Goserud
Obstetrical appliance R. H. Cheatham
Obtunding apparatus C. Van Wyck
Oil burner H. B. Stilz
Oil burner. Crude R. H. Bennett et al
Operating table A. P. Barlow
Ordnance loading apparatus C. P. E. Schneider
Ore crusher P. Hart
Ores. Treatment of sulfid and complex
C. H. Ward
Outlet box C. J. K. ein
Oven. Reel I. J. Marsh
Padlock W. E. Rembert
Paint pot J. Tammenga
Paper and the like separator T. H. L. Dixon
Paper clip L. Senge
Paper cutter W. Ring
Paper machine guide roller W. H. Stobie
Parcel bundling machine G. H. Adthead
Parcel or package strap J. Kinsella
Partition device for rooms W. C. James
Peat drying apparatus P. Reynolds et al
Pen. Fountain W. I. Ferris
Pen. Fountain F. E. Williams
Pen. Self filling fountain R. Couklin
Pen. Self filling fountain R. W. Gorham
Percussion drill. Hollow J. Murphy
Piano J. Hattemer et al
Piano 2 pats. J. Hattemer
Pipe clamp O. S. Augensen
Pipe connection for closet bowls. Soil
W. E. Delehanty
Pipes. Insertible fitting for soil
W. Vanderman
Planer feed F. B. Cockburn
Plaster and other bodies from the action of
moisture Preserving H. R. Volland
Plastic composition J. W. Ivory
Pleasure wheel C. J. Jones
Plow. Ditching D. W. Denny et al
Plow. Trenching and ditching
E. T. R. & J. G. Coates
Poke. Cow H. H. Edgerle
Power transmission mechanism C. G. Simonds
Power transmitting mechanism F. M. Slocum
Primer C. A. Bailey
Printer's register hook J. Kyle
Printing form locking device F. Maier
Printing machine J. Hough
Propeller. Screw F. A. Newell
Pulverizer G. S. Kuapp
Pulverizer and clod crusher. Land
R. J. Buswell
Pulverizing mill J. H. Elspass
Pump. Air L. Walkup
Pump cut off Automatic J. Murphy
Pump. Pressed metal T. E. Reynolds et al
Pump. Rotary W. Smith
Pump. Rotary W. S. Sharpneck
Puzzle E. C. Howland

- Radiator pipes or risers. Covering..... M. Steinbrecker
Rail joint..... J. Le Fevre
Rail joint..... I. A. Oliver
Rail joint..... O. S. Hendricks et al
Railway cross tie..... D. H. Bromm
Railway crossing..... A. Hollinger
Railway, Elevated..... D. Humphrey
Railway, Pleasure..... G. C. Hale
Railway signal. Electric..... J. Barti
Railway switch..... C. E. Kling
Railway switch..... J. E. Nitkey
Railway switch. Automatic..... F. R. S. Dittmars
Railway tie..... J. W. Field
Railway tie..... F. E. Bundy
Railway tie. Metallic..... W. E. Steed
Railway with sliding trains..... C. Theryc
Railways and the like. Signaling system for..... C. D. McPhee
Railways. Train operated time signal system for..... W. B. Severance
Receptacle. Refractory..... P. A. Mackay
Rolling mill feed train..... E. Meyer
Rotary engine..... W. Schluter
Rotating bodies. Means for the axial balancing of..... A. Patschke
Rubbing post..... C. M. Davidson
Safety elevator..... C. E. Crump
Sand blast apparatus..... J. E. Thompson
Sanding machine..... E. Tyden
Sash fastener..... H. Witte
Sash lock and antirattler..... H. Conboy
Saw filing device..... F. A. Wuest
Saw frame blade clamp..... J. Grieve
Sawmill dog..... W. H. Trout
Saw mill. Twin circular..... H. G. Dittbenner
Saw set..... H. L. Johnston
Sawing machine. Gang cut off..... H. G. Dittbenner
Sawing machine traveling table..... E. L. Pangburn et al
Scaffolding bracket or support..... E. R. Argenbright
Scissors and shears. Tensioning device for..... J. J. Anderson et al
Scuttle door and skylight lifter..... J. D. Bee, Jr
Seal and making same..... E. J. Brooks
Seam ripper..... F. Treat
Securing device..... F. W. Starr
Seeder..... S. K. Dennis
Separating solid substances from liquids. Apparatus for..... F. Kassian
Sewing machine attachment operating means..... J. H. Trowbridge
Sewing machine thread guide..... A. E. J. Catterall
Shaft and pulley coupling..... I. R. Criste et al
Shaft brace..... A. G. Brunsmann
Shaft collar..... F. T. Baldwin
Sheet metal bodies. Machine for applying the ends to..... C. H. Ayars
Sheet metal can..... J. M. Young et al
Ship. Battle..... P. Cote
Shoe..... H. C. Welch
Sign. Street..... J. Travis
Skid for moving rails..... J. Winter
Sliding gate..... A. Appling
Small arms. Automatic..... L. Hellfritzsch
Smoke consuming device. Automatic..... O. C. & O. M. Ulrich et al
Smoke consuming furnace..... J. W. Allan
Smut machine..... A. H. Baenen
Soap tray..... F. H. Turner
Soldering compound..... J. J. Mossop et al
Soldering machine. Can..... H. Ayars
Sole and heel protectors. Device for positioning..... F. W. Whitcler
Spark consumer..... H. Gray
Speed indicator..... N. Young
Spiraling tool..... E. M. Cobb
Spring bottom..... O. R. Hunt
Stand for tooth and nail brushes, tobacco pipes, &c..... W. Ulrich
Staves. Device for uniting wooden..... D. Crane
Steam generators. Water tube for..... W. Ambler
Stereotype casting mold..... W. Scott
Stereotype matrix..... F. Schreiner
Stone spraying device. Live..... I. D. Smelser
Stone saw..... W. B. Ruble
Stop mechanism. Automatic..... R. H. Nicholson
Stovepipe protector..... S. B. Graham
Sugar and making same. Composition for cleansing..... C. A. Spreckels et al
Surveying instrument..... W. S. Stockwell
Switch throwing device. Automatic..... C. J. G. Rickerson
Tag..... D. Essex
Talking machine..... R. A. Anthony
Target..... W. W. G. Webb et al
Telegraphic transmitter..... R. Wolters
Telephone exchanges. Service meter apparatus for..... C. E. Scribner
Telephone signal apparatus..... D. F. Laughlin
Telephone support. Portable..... A. G. Davis
Telephone system. Party line..... S. M. Gant
Tennis court marker. Lawn..... A. L. Rickman
Tension member. Expanded metal..... J. Kahn
Theaters. Device for controlling and registering the issue of checks or passes in..... R. G. Fothergill
Theobromin sodium formate and making same..... F. H. Tritschler
Thong hole cutting machine..... C. Eberle
Thread brake..... H. A. Bates
Thread, wire, and other cores. Covering..... W. A. Phillips et al
Thread, wire and other cores. Apparatus for covering..... W. A. Phillips et al
Thrust plate. Antifriction..... A. W. Tweeden
Tile cutting mechanism..... J. A. Sloan
Tiles. Means for handling unburned..... W. E. Rivers
Tiling. Manufacture of..... J. A. Sloan
Tin plate branding and dusting apparatus..... T. C. Evans et al
Tire bolting machine..... J. A. Bryant
Tire for road wheels. Resilient..... A. Ducasble
Tire. Vehicle..... F. A. Magowan
Tire. Vehicle wheel..... J. W. Jones
Tire. Wheel..... W. Monroe
Tool holder..... E. H. Purdy
Tools. Speed control for machine..... N. D. Chard et al
Toy..... L. I. Darby
Toy..... A. Stein
Toy..... H. Stuber
Tray. Change..... E. Bruneoff
Trees. Means for training young..... J. C. Massard
Truck. Car..... B. R. Van Kirk
Trunk..... C. H. Richards
Trunks, &c. Frame for..... 2 pats. O. D. White
Tub support, ironing board and clothes rack. Combination..... E. L. Bergstresser
Tube bending machine..... G. H. Reynolds
Tubes from breakage. Means for protecting frangible..... G. W. Justus
Turbines. Nozzle for elastic fluid..... E. Thomson
Type holder..... W. F. Joyce
Type writing machine..... A. T. Brown
Type writing machine..... W. P. Smith
Umbrellas, canes, &c. Holder for..... G. Nordenstierua
Valve..... J. Harsen
Valve. Reducing..... J. Dewrance et al
Vehicle brake 2 pats. T. L. & T. J. Sturtevant
Vehicle cushion and pump..... W. S. Freil
Vehicle gear. Equalizing..... O. Cullman
Vehicle. Motor..... R. O. Hood
Vehicle. Self propelled..... J. L. Davis
Vending machine..... F. E. MacCordy
Vending machine. Newspaper..... H. C. Churchman et al
Vinegar generator..... A. Coulombe et al
Wagon. Dumping..... E. O. Long
Wall construction. Partition..... F. L. Kane
Warming device..... A. E. McKnight
Washer..... C. G. Ette
Washers. Making..... A. Sang
Wash tub..... A. Thourot
Water closet seat. Attachable..... H. Parker
Water heater. Electric..... W. C. Dice
Weather strip..... H. J. O. Reed
Welding rail joints electrically..... C. Pahde
Wells. Valve for oil..... H. D. Bernard
Wheel locking device. Vehicle and other..... C. F. Loftus
Wheel straightening machine..... J. S. Mayse
Whip snapper attachment..... C. A. Brounugh et al
Wick. Lamp..... W. A. Wilson
Wind instrument mouthpiece..... L. O. Hanson
Wind instrument water key..... W. F. Boast
Winding machine take up mechanism..... H. C. Bailey
Window protective device..... G. J. Boyd
Window screen..... W. F. Cummings
Window screen..... W. C. Hildebrand
Wire. Draw plate for drawing..... A. Rathbone
Wire. Galvanizing..... G. L. Meaker
Wire stretcher..... O. F. Weisenborn
Wire working implement..... F. W. Barber
Wort cooler..... H. Rebsamen et al
Wrench..... F. N. Wilson
Wrench..... F. A. Edwards
Wrench..... R. N. Miller
Zinc compounds. Separating ferrous..... G. L. Meaker
Zinc ores. Treating..... P. A. Mackay
- DESIGNS.**
- Badge..... W. Willis
Badge..... 4 pats. C. J. Dieges
Candlestick..... E. F. Gallaudet
Mirrors, brushes and similar articles. Back for hand..... H. B. Beach
Percolator handle..... H. Nutrizio
Trunks and similar articles. Corner piece for..... J. P. Clark
- Issued September 26, 1905.**
- MECHANICAL PATENTS.**
- Abstracting land titles. Device for..... F. W. Riblet
Accounts. Pocket recorder for expense..... A. G. Carlson
Acid. Making sulfuric..... R. Knietzen
Adding machine..... G. N. Hinchman
Advertising device..... B. Baker
Aerating polluted liquids. Apparatus for..... W. M. Venable
Alarm system..... F. McGloin
Alkali and alkaline earth metal hydrides. Producing..... F. J. Machalske
Alkylsalicylglycolate and making same..... P. Holzach et al
Altometer and level..... J. Morris
Amalgamator..... H. L. Lightner
Amusement apparatus..... C. D. Havenstrite
Amusement apparatus..... C. L. Milligan
Anchor. Dredge..... W. Clifford
Atmospheric heater..... O. W. Gray
Automatic switch..... E. T. Humpton
Awning. Folding..... C. W. Linder
Axle lubricating journal box. Railway car..... A. J. Marshbank
Bag..... J. Hirschfeld
Bait. Artificial..... S. K. Bailey et al
Baker's trimmer..... A. E. Schuchert et al
Baling press..... C. L. Miller
Band or shirt. Infant's..... 2 pats. C. E. Ovenshire
Bandage. Elastic..... H. Myers
Barrel hoop..... J. W. Jaycox
Barrel roller..... C. E. Bagford
Bearing. Compensating..... J. Hartness
Bearing for handle caps..... L. B. Prahar
Bed. Folding..... W. C. James
Bed. Folding..... A. H. Andrews
Bicycle. Ice..... G. W. Vaughan
Binder. Loose leaf..... P. A. Eftoe
Boat bailer..... H. P. Van Wagenen
Boiler..... L. Marchessault
Boiler heater. Steam..... H. E. Gardner
Boilers by means of oil. Heating and firing..... E. Korting
Bolt..... S. W. Finch
Bolt cutter..... F. Tessier
Bookbinder..... R. J. Nicholson
Bottle..... F. & C. Decker
Bottle capping machines. Feeding hopper for..... H. L. Fulenwider
Bottle stopper..... J. A. Hamlin
Bottle stopper..... M. Salotto et al
Bottle. Tooth powder..... M. T. Rounds
Box construction..... C. A. Herr
Bracket..... W. L. Willing
Brake beam fuerum post..... W. E. Sharp
Brake hanger..... J. S. Clark
Brake shaft hanger. Vehicle..... M. Pottor
Braking regulator..... F. J. Chapsal et al
Brick cleaning machine. Old..... J. M. Moroney et al
Brick molding machine..... L. Shel
- Brick tongs..... A. R. Tift
Bride bit..... F. E. R. Malke
Brooder. Poultry..... S. A. Merkle et al
Brush..... F. Gaul
Brush..... R. A. White
Bucket dumping device..... J. C. Kirsch et al
Buckle. Suspender..... H. R. Webb
Building block..... J. H. Miller
Cabinet for small articles..... A. E. Fisher
Can section forming and assembling machine..... L. C. Sharp
Candy. Making..... J. Stuckes
Candy. Making stick..... J. Stuckes
Cane loader..... A. J. Buquet
Car. Dump..... J. Shelton
Car. Passenger..... W. G. Ross et al
Car ventilator..... T. H. Garland
Cars. Automatic back stop for motor..... W. B. Hayden
Card. Time..... H. B. Palmer
Carpenter's gage..... G. W. Peyton
Carpet renovator..... J. S. Thurman
Carpet renovator. Pneumatic..... C. Gunderson
Carriage top joint..... H. Welch
Cartridge filler. Powder..... W. H. Hayes
Cartridge vent detector..... O. M. Lissak
Chain..... J. Hickey
Chair..... J. P. Hokans
Check controlled apparatus..... G. W. Meredith
Check or counter..... G. B. Keplinger
Check protector..... G. W. Beebe
Cheese cutter..... W. R. Montgomery
Chuck..... 2 pats. E. A. Cowles
Churn..... W. Sanders
Cigar and cigarette holder..... J. Sharman
Cigarette making machine..... A. Benoit et al
Circuit breaker..... C. H. Brigham et al
Circuit interrupter..... G. P. McDonnell
Clasp..... G. Sheldner
Cleaning compound..... C. H. Sproessig
Cleaning device..... E. Krahnstoever
Clock. Secondary electric..... R. J. Flint
Clock winding device. Electric..... C. S. Burton
Clothes line prop..... G. Nickens
Clutch..... L. E. Gibson
Clutch mechanism. Magnetic..... H. A. Williams
Coal cutting machine..... C. O. Palmer
Cocoa or chocolate. Making malted..... W. B. Kerr
Coiling apparatus..... J. A. Horton
Compass leg and point..... A. E. Abetz
Composition post..... H. H. Clough
Concentrator..... S. L. Hague
Concentrator..... H. L. Lightner
Concrete block forming machine..... A. A. Pauly
Concrete block machine..... W. S. Barker
Concrete block machine..... E. M. Walton
Concrete block mold..... F. Simonsen
Concrete bodies machine for molding..... J. B. Coryell
Concrete mixing and distributing machine..... G. W. Weller
Condensers. Anticorrosion device for surface..... A. Harris et al
Connecting rod..... R. M. J. Phillips et al
Copy holder and note book cover. Combined..... P. A. Eftoe
Coring machine. Fruit..... A. J. Burns
Corn husking machine..... J. Briggs et al
Corn shocking machine..... D. W. Smith
Cot..... J. N. Young
Couch roll..... B. B. Farham
Crate or box..... W. H. Hines
Crates, boxes, &c. Binder for..... E. N. Maull
Crematory and latrine. Combined..... F. P. Smith
Crematory. Portable..... F. P. Smith
Cultivator..... G. E. Conklin
Cultivator..... V. T. Lynch
Cultivator..... A. R. Friedeman
Cultivator and harrow. Combined..... W. H. Tillou
Curtain fixture..... M. Davis
Cutter head..... W. R. Fox
Dam..... W. J. Meyers
Dampener mechanism. Time..... M. C. Harper
Dental waste cotton receiver..... L. L. Sheffield
Dies and patrices. Apparatus for making..... E. T. McPherson
Ditching machine..... J. & C. F. Foster
Doll..... E. Smith
Door check..... W. H. Minor
Door holder..... M. E. Bever
Door lock..... J. Toth
Draft equalizer..... M. A. Blanchard
Draft gear..... C. S. Corning
Drop fixture. Automatic..... H. M. Sturgis
Drum beater..... A. D. Converse
Duster. Shoe and pants..... M. M. Hitt
Earthenware while being enameled. Pin for holding..... W. E. Cuning
Egg case. Folding..... L. P. Brown
Electric conductors. Means for securing..... C. Potter
Electric currents. Apparatus for use in the distribution of alternating..... A. F. Berry
Electric cut out switch..... N. W. Crandall
Electric machine. Dynamo..... J. P. Mallett
Electrical furnace. Incandescent..... F. J. Tone
Electrical rosette..... J. A. Mebane
Electrodes. Producing..... H. Specketer
Embroidery frame..... C. Payen
Emergency coupling..... W. N. Hensley
Engine circuit controller. Explosion..... R. Varley
Engine starter. Explosive..... E. J. Grace
Engines. Sparking igniter starting mechanism for gasolene..... A. J. Haskell
Envelop..... C. H. Strube
Erasers. Receptacle for chemical ink..... R. F. Merriam
Etching. Machine for powdering plates for..... L. E. Levy
Fabric coating..... F. X. Govers
Fabric coating and making same. Insoluble..... F. X. Govers
Fabrics into blanks and uniting the same. Machine for cutting..... F. A. Seiberling et al
Fare register..... 3 pats. C. E. Gierding
Feathers. Preservation of..... R. Wolfenstein
Fence..... J. J. Ferrer
Fence post..... O. W. Carpenter
Fence post..... J. & R. G. Schneider et al
Fence wire fastener..... H. Meirnecke
Fence wire stretcher and post brace. Combined..... H. B. Scott et al
Fender..... J. C. G. Bradley
Filter..... C. Heilrath
Filters, &c. Controlling device for..... C. L. Parmelee
Firearm sight..... J. Windridge
Fireproof blinds. Slat for constructing..... H. E. Vance
Flat iron heater..... E. Thomas
Fly paper. Sticky..... S. Boyd
Fly wheel and crank shaft structure..... S. W. Shaw
Food compound and making same..... H. L. Wood
Food preparations. Manufacture of..... J. E. Bloom
Fruit picker's sack..... E. Harter
Furnace..... M. Leitch
Fuse terminal. Safety..... J. Sachs
Game board..... T. D. McCluskey
Garment clasp..... J. P. Croasdale
Garment hanger..... J. M. Walker
Garment supporter..... H. J. Corper
Gas burner..... E. M. Greenbaum
Gas burner..... W. McLaughlin
Gas burner chimney. Incandescent..... A. P. Storrs
Gate..... J. E. Sturton
Gate..... G. W. Fox et al
Gate..... C. H. Rickabaugh et al
Gear. Reversible shaper..... L. C. Wetzel
Gearing. Transmission..... O. W. Davis
Glass blowing machine mold..... H. Bard
Glass. Machine for making wire..... 2 pats. A. J. Baldwin
Glass. Process of and apparatus for the manufacture of sheet..... E. Rowart et al
Glove. Catching..... J. A. Peach
Grader. Road..... J. W. Langfitt
Grain bagging and weighing machine..... J. B. Williams
Grain drill..... S. K. Dennis
Grain drill double disk..... R. H. Schlachter
Graphite lubricator..... C. W. Weiss
Grinding die making driving punches, reamers, &c. Machine for..... J. A. Horton
Gum tragacanth from locust beans. Obtaining..... R. Gray et al
Gun mount..... 2 pats. J. F. Meigs et al
Hammer attachment..... A. J. Kitson
Harness loop..... F. G. Rogers
Harrow sulky attachment..... J. J. McLaughlin et al
Harrow tooth..... J. W. Smith
Hay and stock rack. Convertible..... J. Schuster
Heating system..... N. Saltonstall
Hide reel..... C. H. Stelling
Hoisting mechanism. Electric..... J. B. Phillips
Hook and eye..... H. A. Bowman
Horse weigh..... T. Bellstedt
Horse whipping mechanism..... A. Nendeker
Horseshoe..... G. B. Paul
Horseshoe..... C. W. Ingram
Horseshoe calk..... E. Forkey
Ice cream freezer..... G. F. Dickson
Ice harvester..... W. Esch, Sr
Index. Card..... F. W. Riblet
Inhaler..... J. Rich
Ink well..... J. H. Riddick, Jr
Ironing table..... J. A. Whitted
Jail..... W. R. Kales
Journal bearing. Antifrictional..... L. P. Alford et al
Knife cleaning machine..... M. Wallrath
Knitting machine. Circular..... F. B. Wildman
Ladders, &c. Protector for the rollers of dredge..... R. R. Douglas
Lamp and lantern burners. Holder for..... H. O. Blecker
Lamp burner extinguisher. Automatic..... S. Lever
Lapping..... W. T. Field
Lathe. Multiple..... I. Aasland
Lathe. Turning..... W. Huguershoff
Lathes. Balanced drive for..... J. Hartness
Lathes. Bed for turret..... J. Hartness
Lawn sprinkler..... B. Brown
Level..... T. Hadden
Lifting jack..... C. Nelson
Linotype machine..... W. H. Scharf
Linotype machine..... P. T. Dodge
Linotype machine..... C. L. Grohmann
Load meter..... E. J. King
Lock..... C. E. Duggan
Magnetic separator..... C. M. Green
Mail bag catcher..... H. S. Bostian
Mail bag fastening..... C. B. Stevens
Mandrel..... H. Simpson
Manure loading device..... A. Winter
Massaging purposes. Electrical vibrator for..... L. E. Richmond et al
Matrix retainer..... J. Mills
Mattress. Spring..... W. Bodette
Measure. Skirt..... M. E. Hudson
Meat chopper..... O. Kohn
Mechanical brake..... C. G. Skiles
Metal seat. Pressed..... R. T. J. Martin
Milk machine..... O. B. Bryant
Milling machine..... E. J. McClellan
Milling machine attachment..... W. Salmon
Milling machine change speed device..... W. H. Owen
Mining machine..... C. O. Palmer
Mitt or glove. Catcher's..... F. L. Sheldon et al
Mitten..... L. Frutchey
Motor controlling device..... F. B. Duncan
Motors. Equalizing device for spring..... J. Petrillo
Motors. Governing device for explosive..... J. R. Hubbard
Music note recorder..... L. Kromar
Music rack for pianos, &c..... T. A. Branson
Musical instrument beater..... J. P. Stanton
Muzzle. Calf..... A. A. Downey
Nest box..... C. C. Scott
Nickel from mattes. Separating..... R. W. Aiken
Nut. Metal..... D. O. Ward
Nut. Self locking..... 2 pats. D. O. Ward
Ore washer and concentrator..... N. B. Winter
Packing box..... H. D. Slear
Paper bag machine..... F. E. Strasburg
Paper box stay strip..... W. L. Popple
Paper making machine roll..... S. Milne
Peanut warmer..... C. D. Lender
Pens and pencils. Safety clip for holding..... W. I. Ferris
Perambulator..... A. E. McGill
Photograph record roll..... C. C. Shigley et al
Photographic solution box..... G. C. Gennert
Photostereoscopic apparatus..... J. S. A. Tournier
Piano panels. Pivotal support for..... W. H. Matchett
Picture. Changable..... W. Faber et al
Pipe coupling..... N. Nagelschmidt

Pipe coupling.....J. O'Meara
Planter and fertilizer distributor.....W. R. Norman
Planter, Corn.....H. F. Spaulding
Planter, Corn.....G. W. Brubaker, Jr.
Planter, Corn.....C. W. McCabe
Planters, Supplemental shoe for.....F. W. Siebert
Plaster or mortar, Making.....J. B. N. Berry
Plastic hollow ware, Handling.....O. C. Pixley
Plastic mass, Manufacturing.....A. Geipel
Pneumatic despatching tube system.....W. H. Dinspel et al
Pneumatic drill.....C. S. Leonard
Pole tip.....F. L. Conant
Power generator, Electromagnetic.....J. L. Potter et al
Printing machine.....T. M. North
Printing, Multicolor.....G. R. Hildyard
Printing press, Multicolor.....D. R. Miller
Printing presses, Producing curved or flat color plates for use in.....J. H. Swain
Profiling machine.....H. Schuberth
Propeller, Boat.....M. Perez
Propelling vessels.....R. Stoia
Pulleys, Adjustable finish face plate for sash.....U. G. McQueen
Pulp screen.....E. J. Pope
Pump, Diaphragm.....F. & G. N. Briggs
Pump head, Power.....G. C. Richards
Punch press.....A. Johnston
Punching machine.....E. A. Commander
Radiators, Combined foot rest and shelf for.....F. H. Maxam
Raft, Log.....J. A. Campbell
Rafts, Cradle for building log.....J. A. Campbell
Rail bond.....G. A. Mead
Rail chair.....R. H. Fray
Rail joint.....G. W. Whitman
Rail joint.....J. I. Pittman
Rail sanding device.....W. T. Watson
Railway rail joining apparatus.....C. F. Jacobs
Railway rail joint.....J. H. Creel
Railway signaling apparatus.....J. D. Taylor
Railway sleeper.....M. E. McGrath
Railway switch.....J. S. Deiter
Railway switch.....H. C. Rush
Railway switch.....H. Feuske
Railway switch.....F. W. Wolf
Railway switching apparatus.....J. D. Taylor
Railway tie.....P. G. Van Tongeren
Railway tie.....J. G. Snyder
Railway weed burning device.....W. W. Lamb et al
Range, Gas.....W. K. Stafford
Rifles and the like, Aiming stand for.....B. Ruthling
Roasting furnace.....A. R. Meyer
Rock crusher.....J. H. Elspass
Roofing and siding for buildings, Composite.....T. F. Odell
Rotary motor.....J. A. Shepard
Saw, Circular.....A. B. Calkins
Saw, Portable.....A. B. Bonen
Scissors and shears.....O. Weaver
Scissors holder.....L. E. Arnel
Screw cutting machine.....L. Sussman
Seal.....E. J. Brooks
Seal, Snap.....E. J. Brooks
Sealing disk or packing for bottles or other vessels.....H. S. Brewington
Seaming machine, Can., 2 pats.....O. S. Beyer
Seeding machine.....L. M. Jones et al
Seesaw and ironing board.....G. W. Fairbanks
Severing and vending, variable portions of integral bodies of different values, Means for.....H. F. Dunn
Sewing machine, Buttonhole.....G. S. Hill
Sewing machine, Lock stitch.....M. T. Denne
Sewing machine needle thread controlling device.....R. G. Woodward
Shade.....2 pats.....P. G. Emery
Shade and curtain bracket, Window.....G. Archambeault
Shade pull, Window.....H. N. Herr et al
Shaving cup, Sanitary.....J. B. Klunk
Sheet metal characters, Manufacturing prismatically hollowed.....F. Ebert
Shoe dressing dauber.....E. J. Hazelton
Show case.....H. Schielke
Shuttle.....E. Herzig
Sign.....W. T. Watson
Signal system.....W. B. Bruce
Signaling system, Electric.....H. W. Sonder
Skate roller.....L. M. Richardson
Slicing machine, Meat.....A. Lutzmann
Smelting or melting furnace.....A. B. Griffin
Speed changing mechanism.....C. M. Conradson
Speed recorder.....J. S. Morse et al
Sponge, Fountain.....G. H. Willis
Spraying apparatus, Liquid.....G. P. Barnes
Spring attaching loop tie.....W. H. Bates
Spring forming machine.....F. W. Stambaugh
Stacker.....A. C. Clark
Stacker, Hay.....M. Mead
Stamp case.....F. C. Higgins
Stamp mill splash plate.....G. C. Richards
Stamping machine, Roller.....A. Wood
Steam boiler.....J. Almada
Steam controller, Automatic.....W. E. Roys
Stool, Folding.....G. V. McConnell
Stopper.....H. G. Hotchkiss et al
Store service apparatus.....C. E. Thompson
Suit case.....F. H. White
Swab case.....H. P. Tippet
Switch and signal track trip.....C. M. Hurst
Switch throwing device.....R. Rahiser et al
Switches, Spring adjusting mechanism for electric.....C. G. Perkins
Switchboard for multiple exchanges.....M. G. Kellogg
Swivel, Hydraulic.....A. Thompson et al
Table.....J. Herzog
Target apparatus.....J. L. McCullough
Teeth, Making shell gold crowns for.....S. E. Wilhelm
Telegraphic recording apparatus.....P. B. Delany
Telegraphy.....5 pats.....F. W. Jones
Telephone exchanges, Multiple switchboard for.....W. G. Kellog
Telephone lines, Secret service system for interconnecting.....A. K. Andriano et al
Tenon forming machine, Duplex H. L. Staley
Thread sizing machine.....J. Couche
Tie holder.....F. E. Wicking
Tile making mold.....C. S. Larimer

Tiles or the like, Apparatus for use in manufacturing mosaic.....L. Streuli
Tin scrap, Treating.....M. Leitch
Tire, Vehicle.....2 pats.....A. de Laskiet al
Tire, Vehicle.....F. Burnham
Tire, Vehicle.....C. W. Faltoute
Tires in continuous lengths, Making.....G. M. Stadelman
Tires, Tool for removing and replacing cushion.....T. P. Corboy
Tongue support.....J. S. Kurtz
Tool holder.....M. Barber
Tool, Pneumatic.....J. A. Shepard
Tool reversing mechanism, Machine.....F. B. Cockburn
Tools, Device for machine.....G. E. Stevens
Toy.....J. D. Washington
Toy bank.....H. Dunn
Toy, Figure.....R. A. Schwahn
Toy railway.....A. Huck
Train lighting system.....S. Krohn
Traverse ring.....D. M. Sarkisian
Tree felling machine.....A. Perrey
Trolley pole and stand.....W. W. Hallenbeck
Trolley wire coupling.....E. M. Leslie
Trousers stretcher.....W. J. Wardwell
Truck and means for loading and unloading same, Motor.....2 pats.....R. L. Morgan
Truck, Motor.....2 pats.....R. M. Morgan
Trucks, Means for loading and unloading motor.....T. E. Morford et al
Truss.....F. Serio
Tug, Harness.....G. W. Creps
Tug, Thill.....L. W. Ashley
Turbine, Elastic fluid.....W. T. Mixsell
Turbines, Pressure controlling mechanism for.....J. Wilkinson
Type casting machine type mold.....J. Mayer et al
Type writer for the blind.....J. B. Hammond
Type writing machine billing plate.....R. D. Stackpole et al
Type writing machine for the blind.....J. B. Hammond
Undergarment, Lady's.....B. W. Jeanson
Underwaist.....E. H. Horwood
Unloading, storing, and reclaiming apparatus.....L. Moss
Valve clamp, Triple.....O. L. Wright
Valve device for steam heating apparatus.....J. L. Fitts
Valve device for steam heating apparatus.....M. P. Osbourn
Valve for heating systems, Relief.....A. McGonagle
Valve for steam boilers, Safety.....W. F. Thorn
Valve gear, Steam engine.....E. Hill
Vehicle running gear.....W. T. Hanna
Vending machine.....T. J. Schmidt
Vending machine, Coin controlled.....W. W. Klemm et al
Vibrating and massaging device, Electrical.....L. E. Richmond et al
Vise.....O. A. Anderson
Wagon.....J. Repetto
Wagon, Dumping.....A. J. Koob
Wagon, Mail carrier.....L. T. Varin
Water closet tank.....M. L. Martin
Water elevator, Compressed air.....A. W. Drake
Water softening apparatus.....H. S. Flynt
Waterproof coating and making same.....F. X. Govers
Weather strip.....2 pats.....W. Van Horn
Weed cutter, cultivator and pulverizer, Combined.....J. E. Courtwright
Welding pipe couplings, Apparatus for.....J. A. & H. W. Hock
Wheel.....E. J. Watkins
Wheel and colter attachment, Combined.....J. A. Wood
Wheelbarrow.....J. Kaufmann
Wire fabric, Machine for weaving and selvaging diamond mesh.....W. W. McCallip
Wood machine, Cord.....L. S. Taylor
Work holder.....M. B. Edgerton

DESIGNS.

Knitted fabric.....F. Conde
Mantel shelf.....L. Stocker
Mirrors, brushes or similar articles, Back for

Canadian Patents.

Canadian Patents may now be obtained by the inventors for any of the mechanical inventions named in the foregoing list, provided they are simple, at a cost of \$30 each. If complicated the cost will be a little more. For full instructions address Inventive Age Publishing Co., 918 F Street N. W., Washington, D. C.
Foreign patents may also be obtained in certain other countries.

FREE!

Send us 2 cents to pay for postage and we will mail you a valuable copyrighted book, "How to obtain Patent, Caveat, Trade-Mark and Copyright Protection, with Decisions in Leading Patent Cases" entirely free of charge. Address:

INVENTIVE AGE PUBLISHING COMPANY,
(Dept. P.) WASHINGTON, D. C.

INVENTORS OF SHEET METAL, WIRE AND PLASTIC MATERIAL GOODS.

The Wiet-Goethe Company of Sacramento, California, owns the best tool room and plant on the Pacific Coast, for the manufacture of goods made from sheet metal, wire and plastic materials. It makes a specialty of the manufacture of patented articles only, and will be pleased to receive from inventors, particulars of articles of this character. The plant is fully equipped in every particular, and offers to the inventors an unusually good proposition. This will largely apply to men of small capital, who in this way, can command the services of a plant, which could not be duplicated for thousands of dollars. Address, Wiet-Goethe Company, Sacramento, California.

New Coal Mines in England.

Experimental sinking operations have recently added another colliery to the large number now being worked in Nottingham, England. The new deposit, reached at a depth of 544 yards, now employs 240 men and is expected to yield 4,000 tons a day. In the nearby country of Stafford, after several years of expensive and apparently useless prospecting, a bed has been discovered and is now being developed which, it is calculated, will yield about 4,000,000 tons of good coal. There are indications that a valuable field of ironstone lies at a greater depth than the coal seam.

Minerals in Isle of Pines.

According to the United States Consular Report dated September 27, 1905 there is a large amount of different grades of marble, suitable for a great variety of purposes. Both the coarse and fine grain marbles appear to be remarkably free from cracks, and slabs of any desired dimension can be obtained. The strata are from 3 to 25 feet in thickness. The coloring is good.

Certain portions of the island contain a large amount of disseminated manganese ore. In some places this manganese has become concentrated, forming deposits of unknown extent, which may some time become valuable.

A New Premium Offer.

WOMAN'S HOME COMPANION.

This magazine is edited and made up in the city of New York, the leading literary and art center of America. It contains the most timely illustrated articles, the most beautiful illustrations, the best short stories, the most popular serial stories, the most practical household departments, the best of everything desirable for a home magazine. It is printed on the finest paper, has 44 to 60 large pages, 11 by 16 inches. The twelve numbers will contain more than one thousand beautiful illustrations. Each month it carries a message of help, profit, pleasure, education, culture and refinement to over two million readers. Its editors and contributors are the most popular American writers. It is altogether the cleanest, brightest, handsomest, choicest and best of American home magazines.

WOMAN'S HOME COMPANION	One year	\$1.00
THE INVENTIVE AGE	One year	\$1.00
A total value of		\$2.00

Both papers one year to any address for only - - **\$1.25**
The above offer applies to new subscriptions only. Send all orders to
The INVENTIVE AGE Publishing Company Washington, D. C.

PATENTS

Send Your Business Direct to Washington ∴ ∴
∴ ∴ Saves Time and Insures Better Service.

Caveats,
Trade Marks,
Copyrights
and
Designs.

My office is close to U. S. Patent Office. FREE report as to patentability made. Personal attention given—TWENTY-FIVE YEARS PRACTICE. Book "How to Obtain Patents," etc., sent free. Patents procured through E. G. Siggers receive special notice, without charge, in the—

INVENTIVE AGE

Illustrated Monthly—Seventeenth Year.
Terms, \$1.00 a Year.

E. G. SIGGERS, 918 F STREET, N. W.,
WASHINGTON, D. C.

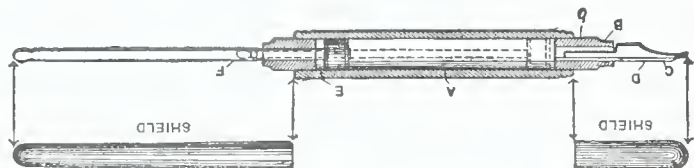
Look At Our Unprecedented Premium Offers !
To Old And New Subscribers Alike.

The "POST"

SELF-FILLING AND CLEANING FOUNTAIN PEN.

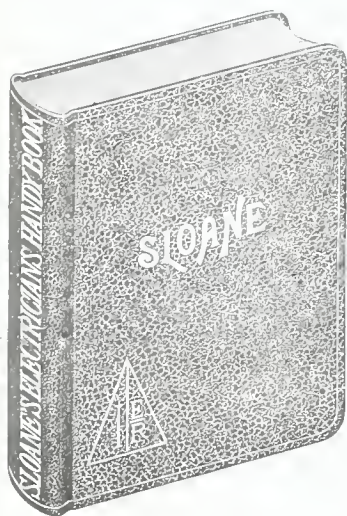
No Filler. No Soiled Fingers. No Lost Time. Simple and Perfect.

THIS IS ITS CONSTRUCTION.



Price \$2.00.

Including one year's subscription to
THE INVENTIVE AGE



ELECTRICIAN'S HANDY BOOK

By T. O'CONOR SLOANE,
A.M., E.M., PH.D.

Handsomely Bound in Red Leather,
with Titles and Edges in Gold.
Pocket Book Style.

800 Pages. 500 Illustrations.
Price \$3.50.

Including one year's subscription to
The INVENTIVE AGE.

Appleton's Cyclopedia of Applied Mechanics

Edited by PARK BENJAMIN, Ph.D., LL.B.
A Magnificent Set in Three Volumes Fully Illustrated.



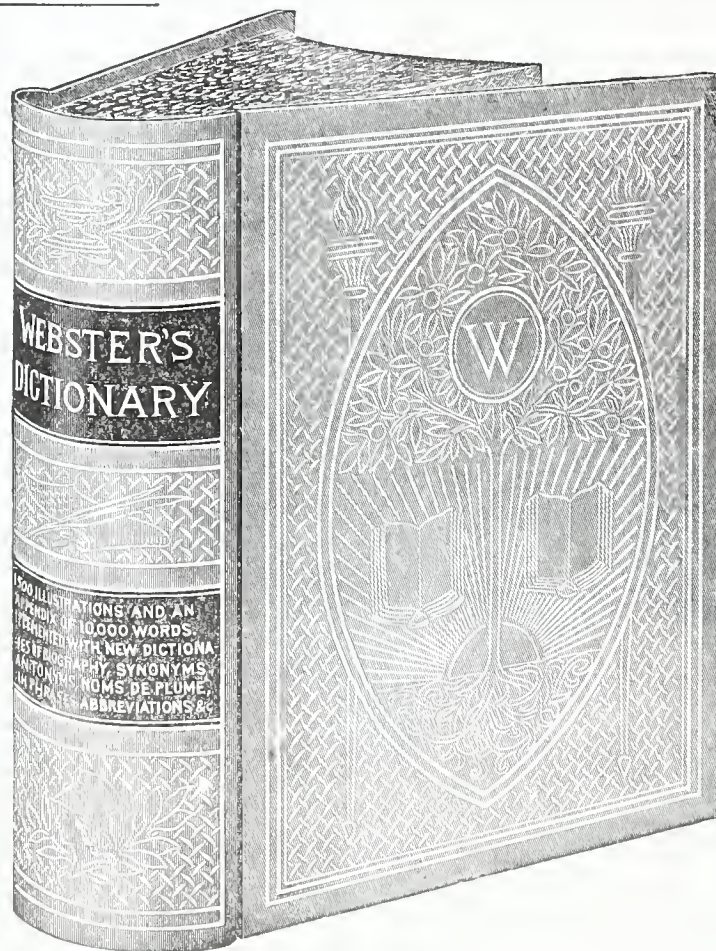
EACH VOLUME 10 x 7 x 2 INCHES. WEIGHT 20 LBS.

SPECIAL PRICE \$12.

Including one year's subscription to
The Inventive Age.

SEND FOR OUR FREE CATALOGUE OF BOOKS FOR INVENTORS,
AND MECHANICS.

Address: THE INVENTIVE AGE PUBL'G CO., 918 F St., Washington, D. C.



1540 Pages; 1500 Illustrations; Full Library Sheep
Binding; Dennison's Patent Index; Size, 4 x 9 x 10
Inches; Weight eight pounds.

Price \$2.50

With one year's subscription to
The Inventive Age.

...A....

Complete Electrical Library

By PROF. T. O'CONOR SLOANE.

5 Volumes,

1300 Pages,

Over 450

Illustrations.

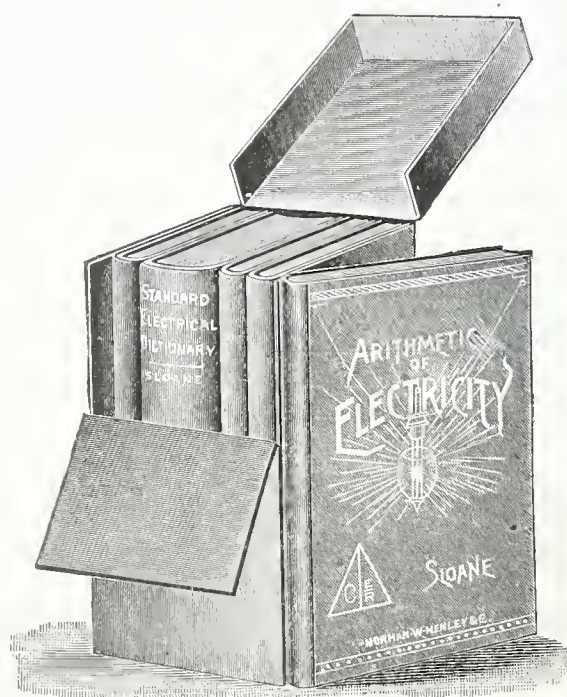


A \$7.00

Library for

\$6.00,

Including
one year's
subscription
to



The Inventive Age.

A JOURNAL
OF MANUFACTURING
INDUSTRY

The Inventive Age

AND SCIENTIFIC PROGRESS.

SEVENTEENTH YEAR.
No. 11.

WASHINGTON, D. C.—NOVEMBER, 1905.

SINGLE COPIES 10 CENTS.
ONE DOLLAR A YEAR.

THE NEW BRIDGE ACROSS THE MISSISSIPPI.

By CHARLES ALMA BYERS.

THE new railroad bridge across the Mississippi river at Thebes, Ill., 130 miles south of St. Louis and 36 miles north of the mouth of the Ohio river, the progress of whose construction has been eagerly watched by engineers in all parts of the country, is now complete; and as a model of perfection in bridge construction it stands, with all points considered, without a peer and with but few equals. Added to this, it also derives importance from the fact that it is a valuable link between several large railway systems, and that, inasmuch as it does away with the old boat transfer service heretofore unsatisfactorily employed at this point, it is a great aid to rapid transportation for large areas on each side of the river.

The Mississippi river at the point spanned by this bridge is about 2,700 feet wide, high water banks considered, and 2,400 feet wide between low water banks. The usual depth is about fifty feet, but this is varied by the flow of



LOOKING THROUGH BRIDGE AS COMPLETED.

cated to traffic. It will be noticed that more than four years elapsed between the two dates, but since there were several delays in the work of construction, the time really employed in the work is estimated at two years and seven months. The building of it was naturally a huge undertaking, as well as dangerous for many of the workmen. The largest corps of men employed at any one time was about 150, and it is said that as many as twenty-six persons were killed during the period of its construction.

The bridge is made up of a steel superstructure of five spans, a concrete viaduct on the Illinois side of five arches and one of seven on the Missouri side, and earth approaches on each side of considerable length, making the total length of the bridge 4.7 miles. The steel superstructure is supported on six piers, built of stone with concrete interiors, which rest upon bed-rock. The rock used in these piers of ashlan masonry was shipped from the quarries at Bedford,



LOOKING THROUGH BRIDGE IN COURSE OF CONSTRUCTION.



THE BRIDGE COMPLETE FROM ILLINOIS SIDE.

water from the Ohio and Missouri rivers. The low water banks are ten or fifteen feet high above low water, and the high water banks are from

twenty-five to thirty feet higher still, with a distance of from 500 to 600 feet between the two banks on either side. The construction of the Thebes

bridge with spans of specified lengths was authorized by an act of Congress on January 26, 1901; and on May 25, 1905, it was tested and formally dedi-

Indiana, a distance of about 400 miles. The arches forming the approaches to the superstructure on either side are made of Portland cement, and it is

estimated they contain 35,000 cubic yards. Each of the five arches on the Illinois side are sixty-five feet long, and six of the seven on the Missouri side are the same length, the other being 100 feet.

The steel superstructure, composed of five spans as already stated, contains a channel or center span 671 feet long—the longest one, excepting the Memphis bridge, of any in the United States and exceeded by only two abroad. The intermediate spans, on each side of the channel span, are each 521 feet 2 inches long, and the shore spans 518 feet 6 inches long. The design adopted in its construction provides trusses 22 feet apart on centers, and with horizontal and vertical train clearances of 32 feet 6 inches and 27 feet 8½ inches. The planes of the top and bottom chords embrace rigid systems of lateral X-bracing, the transverse vertical planes sway bracing, and in the planes of the inclined end posts are portals. In the free spans the panel lengths are 32 feet 6¼ inches, and elsewhere, to reduce the lengths of floor panels, there are sub-divisions by intermediate vertical posts and half diagonals, making panels 30 feet 6 inches.

The superstructure is built upon its piers so as to provide a clearance for river boats of 65 feet at extreme high water mark, and the distance from the bottom of the lowest foundation to the top of the highest point of the steel work is 231 feet.

The total weight of the superstructure is 26,880,000 pounds and the total cost of the entire bridge was \$2,800,000. Of this amount \$1,400,000 was for the superstructure, \$600,000 for its piers and foundations, and \$300,000 for the concrete arch viaducts.

A double track runs the entire length of the superstructure and viaducts. The road bed on both approaches is ballasted, and through the length of the bridge track 85-pound rails are used.

In making the test at the formal opening on May 25, 1905, twenty-eight large size locomotives of modern type, averaging 125 tons in weight, or making a combined weight of about 7,000,000 pounds, were run from one end of the bridge to the other. The bridge withstood this tremendous weight with scarcely a quiver, and the test proved satisfactory. The floor system of the bridge is constructed to bear a concentrated load of 50,000 pounds, to be followed by a train load of 5,000 lbs., per lineal foot on each track, while the trusses are proportioned for about 80 per cent of this weight, and for a wind pressure of 1,000 pounds per lineal foot. The ultimate strength of the bridge throughout is given as about 65,000 pounds per square inch.

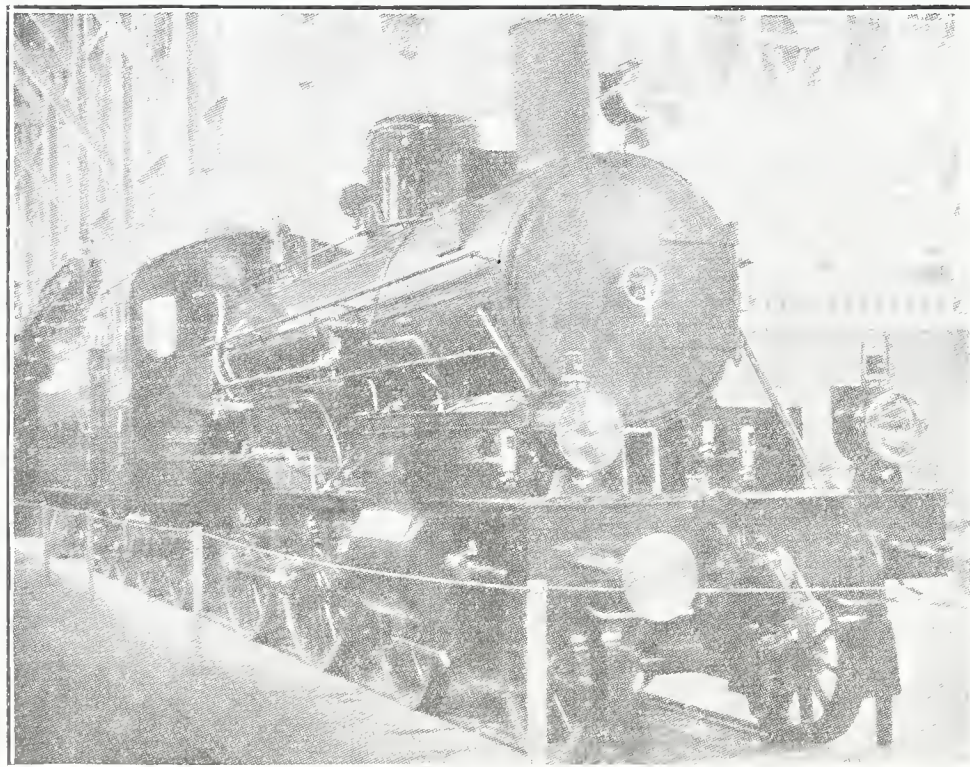
The bridge was built under the direction of the Southern Illinois and Missouri Bridge Company, and for the purpose of furnishing a connection between the Frisco System, the Iron Mountain and the St. Louis Southern railroads on the Missouri side, and the Illinois Central, the Chicago and Eastern Illinois and the St. Louis Southwestern railroads on the Illinois side. Since it was put into commission on April 18, 1905, nearly an average of 714 trains a month or twenty-four a day have crossed, and the longest number of cars that passed over it during any twenty-four hours up to August 15 was 1,024. It is therefore seen that this bridge is a very valuable aid to transportation, and because of this and its superiority in bridge construction, it furnishes an interesting subject.

The engineers for the builders were Messrs Alfred Noble and Ralph Modjeski, and the contractors were as follows: C. McDonald & Company of Chicago, for substructure and piers; American Bridge Company of New Jersey, for superstructure; J. S. Paterson Construction Company of Chicago, for concrete approaches, and MacArthur Brothers Company of Chicago, for grading.

SUPERHEATED STEAM FOR LOCOMOTIVES.

THE electricians' society gave a banquet, some months ago, to celebrate the downfall of steam. The celebration seems to have been a little premature. It will be time enough to lay wreaths of regret on the bier of steam when science is able to harness electricity to its service without the intervention of steam or water power. This wonder may be accomplished, but it has not been practically accomplished as yet. "Unconquered steam" still turns the wheel which calls electricity from the space round about to do the bidding of man—it is the prime mover. For that matter, steam is still the work horse of modern industry. It is steam that carries our commerce over lands and seas. Steam bears our mails, which are the warrant upon which commerce and manufacture act. Electricity should, and doubtless ere long must, move the heaviest and swiftest trains across the land, and the great ships across the sea. But at

made in 1835; but our railroad trains still go by steam. Electric lights shone brilliantly at the first great world's exhibition at the Crystal Palace in London in 1851, but it was not until 1878 that electric lighting was seriously introduced. And although this is the beginning of an era of electricity, recent improvements in the use of steam have rendered this power still more available for the service of man. The superheating of steam effects materially superior economy in power. While for the last ten years the utilization of superheated steam with stationary engines has been general, it has been employed only on a small scale with locomotives. Owing to the great amount of power which a locomotive of limited size must produce, it is far less economical of steam than the stationary engine, whose bulk is subject to no limitation, and its steam is far more heavily charged with moisture, so that



LOCOMOTIVE PROVIDED WITH SUPERHEATER.

present, it performs but a secondary function.

There is, perhaps, more than a mechanical reason why the industrial world clings to the use of steam in the degree that it does, instead of hastening the full application of electricity suggested by the triumphs of modern invention. There can be little doubt that man would extend his use of electricity a little more rapidly than he does if he were better aware what he is doing—in other words, if the essential nature of electricity were more fully understood. Man knows the nature of steam. It is comparatively a simple idea. When water expands into vapor under the influence of heat, he knows that its expansive force will not be denied. He can see how it acts in his tea kettle. The biggest steam engine is only an exaggerated tea kettle. But the electric motor is to most men a mystery.

The first electrical locomotive was

culty incident to the practical utilization of superheated steam.

For the last fifty years, attempts were made to utilize superheated steam with stationary engines, but the results obtained were unsatisfactory, owing to the fact that the materials used were not sufficiently durable. Finally, cast iron was used in the construction of the superheaters, but the fact that the power of the superheated steam increased with its temperature had not been scientifically proved, and as the parts of the machine coming into contact with the steam were found to suffer when the temperature of 260 centigrade was passed, no higher temperatures were attained. It was left for a German to demonstrate that the use of steam superheated fifty or sixty degrees above the temperature named, materially reduced the amount of steam required, and that it can be used without injury in properly constructed machinery. By this time, materials sufficiently durable to withstand the action of superheated steam had been found, and a lubricating oil inflammable only at a very high temperature had been discovered.

The saving attained by the use of superheated steam has been so fully demonstrated that it has been introduced into the larger plants in the United States, and in Germany, its employment for this purpose has become general. Practically all new stationary engines in that country are equipped with superheaters. One of the largest builders of steam machines claims a minimum saving of 15 per cent of the amount of coal consumed by the substitution of superheated, for the ordinary saturated, steam. In some instances, it has been calculated that the saving is as high as 40 per cent. It has been proved that a very material advantage is attained when the machinery and pipes are constructed and installed according to the most advanced principles.

Encouraged by success with stationary machines, the Germans turned attention to the more difficult task of utilizing superheated steam in locomotives. Since 1898, the Prussian State railroads have been carrying on experiments with locomotives employing superheated steam, and these trials have done much to elucidate and overcome the technical obstacles in the way.

The accompanying illustration shows a German locomotive equipped with superheaters. The boiler is much larger than those generally used in Europe, having nearly 2800 square feet of heating surface, and developing about 1800 horse power. It weighs 77 tons and has attained a trial speed of 80 miles an hour with six cars and 85 miles with half that number.

There are varying opinions as to the best type of superheater. In one device, steam is heated by means of furnace gas introduced into an inclosed chamber by a large flue. The chamber, or superheater, through which the hot air passes on its way to the smoke stack, is circular in form and is located in the smoke box. In it are the pipes in which the steam is superheated, and they are so arranged that the steam coming from the boiler is made to pass three times through the superheater. This is the form used by the Prussian railroads, and the engines so equipped have been in use for some six years, giving complete satisfaction. Tests made with these machines show that they use 5 per cent less coal and 15 to 20 per cent less water than engines using saturated steam. Owing to its lightness, this form of steam is also especially effective when the action of the piston is very rapid. Further, a greater strain can be maintained for a short time by these locomotives than by those using the old method. One of the most indefatigable of investigators calculates that under normal conditions, there is a saving of 20 per cent in an ordinary twin steam engine that employs superheated

steam over the one that does not, while the saving in coal is only one-half per cent when the work of a twin engine with superheater is compared with that of a compound engine without it. Owing to the difficulty of obtaining absolute accuracy, the results of the various tests of the efficiency of these locomotives have varied considerably, and there exists more or less difference of opinion as to the limit of economy in fuel and water than can be attained. One experiment was made with two twin engines equipped with superheaters, as compared with two compound engines without them, the engines being of similar size and working for a year on the same track on alternate days, doing similar service. On one line the saving in coal of the twin engine over the compound engine was 6 per cent; on the other line, which ran through a hilly district, the saving in coal was 10 per cent. Furthermore, a second engine was needed to assist the compound engine over some steep grades, and this was not necessary with the twin engine, owing to the greater power attained by the use of superheated steam. A saving in power of 30 per cent has been claimed, but accurate data are difficult to obtain. The testimony of the Prussian

railroad authorities, however, shows that it is considerable. As the compound engine with four cylinders is more complicated and expensive than the twin engine, the results given are very favorable. The advocates of this new method claim that the use of the compound engine has been rendered desirable only by the defects of ordinary steam, and that the simpler twin engine is now capable of taking its place for all purposes, owing to the inherent superiority of highly heated steam.

Scientific investigation has established the fact that the volume of steam superheated to 300 centigrade is 25 per cent greater than that of ordinary steam, that it increases as the temperature rises, and that at the temperature given the deposit of moisture, which reduces the weight of the ordinary steam in the cylinders by one-third, is avoided.

Another type of superheater, which has earnest partisans, consists of a chamber or metal box located in the boiler, from which it is separated by a metal wall through which the boiler flues pass. The interior of the superheater is divided up by walls in such a manner that the steam in passing through the different subcompartments is made to circulate along the

boiler flues. Owing to the risk of injury to the flues, it has not been found desirable to place the superheater too close to the furnace. The temperature in the furnace flues is reduced by passing through the water of the boiler, and the temperature attained is some 60 degrees less than in the type first described. It will be seen that there is a radical difference between the two forms of superheaters. In the former, the steam is heated by means of one large flue, which conveys part of the furnace gas to the superheater chamber, and in the latter, all the furnace gas is passed through the superheater by means of the boiler flues, the steam attaining a temperature much below that of the other. One of the advantages of the latter type is that it can be used on old as well as new locomotives, as it can be adjusted on any boiler; it is also cheaper, the cost being estimated at only \$400 to \$600; there is no loss, it is said, from radiation, as any heat lost in the superheater raises the temperature of the boiler; and also, it needs no special cleaning.

Whatever type may be the best, the facts are established that superheated steam can be used for locomotives as well as for stationary engines; and that the success attained with the

latter will be repeated with the former.

One of the recent locomotives constructed in Germany is so built that the engineer stands in front within a glazed cab like the motorman of an electric car, and both engine and tender are covered with a sheathing of sheet iron with glazed windows, so arranged as to provide a covered passage from front to rear. The engine is carried on 12 wheels, viz., a four wheel bogie in front and rear, and between them the two pairs of drivers, coupled in the usual manner. This arrangement is for the purpose of securing a smooth steadiness of motion despite curves or irregularities of track surface.

Elaborate experiments in high speed electrical traction were undertaken a year or so ago in Germany, and they were followed by an equally thorough series of tests with steam locomotives, in order to secure a basis for conclusive comparisons between the two forms of power for high speed traffic over long distances. Among the interesting conclusions reached was the comparative costs of steam and electrical power. The operating expense for steam was calculated at one cent more, for conveying one hundred passengers 10 miles, than that for electricity.

MACHINES FOR MAKING HORSE SHOES.

By WM. STUART STANDIFORD.

THE passing of the horse, successively predicted on the advent of the railway, the bicycle and the automobile, seems no nearer now than it did before the early locomotive startled our grandfathers by attaining the unholy speed of ten miles an hour. So important a part, in fact, is played by Dobbin in the traction problem of the world, that thousands of workmen are kept busy supplying him with shoes, and many of the factories engaged in this line of endeavor turn out 600 kegs of shoes every day, without satisfying the demand.

Most of us are familiar with the method of making leather footwear for human beings, but comparatively little is known of the means employed in producing the iron and steel shoes worn by man's equine friend. Since the industry has assumed such dimensions, a brief description of the machinery adapted for this purpose may prove of general interest.

The neophyte wonders why horses are shod with iron, since the protection provided by Nature is sufficient for other animals which contribute to the welfare of mankind. This would also be true of the horse, if he were used on dirt roads exclusively. The paved or macadamized highway has necessitated the iron shoe, as it wears out the hoof faster than it can be replaced by Nature. It has also been found that the prongs, or calks of the shoe prevent slipping, and enable the horse to obtain a firm foothold; and this is why the cowboys and rancheros of the West have their animals shod, even though they are used only on the prairie.

In the initial stage of the process of making horse shoes, wrought iron scrap, in short pieces, is piled to a height of 8 inches on a board about 2 feet long and 10 inches wide. The whole is bound with wire so as to hold it together, and a number of these piles, — known as box piles — are placed in the furnace. After being

heated to a white heat, the box piles are rolled into bars $2\frac{1}{2}$ inches square, and are cut into billets about 2 feet long. The length varies according to the size of the finished bars to be made, light iron requiring shorter billets than the heavier iron. This is due to the fact that if all the billets were cut to the same length, the light iron ones, when rolled into bars, would be too long for the "hot bed" as the place where they are rolled is termed. They would lose some of their heat, and be too cold to run through the creaser rolls.

After the billets are cut, they are re-heated and run through seven passes in the roughing rolls: they are

the bar ready for making the shoe illustrated in Fig. 6, and Fig. 5 shows one of the smallest shoes made.

When cool enough to be handled, the rolled bars are cut into the proper lengths, heated in a furnace to red heat, and transferred to the forming machine, which bends them into the shape of horse shoes. They are then passed through the flattening machine, and spread out and allowed to cool. A punching apparatus pierces the holes for nails, and a grubbing machine takes off the burrs left by this process. Thence the shoes are taken to the sorting floor, where the defective ones are thrown out, some with minor defects being sold as

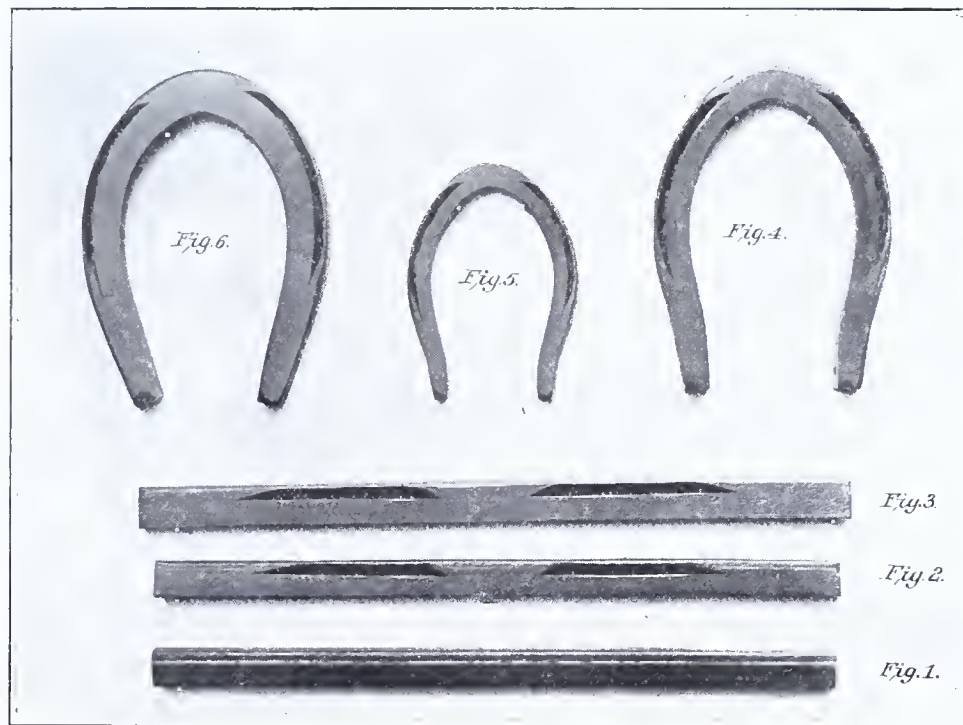
front shoes are made heavier than those for the hind feet, the weight differing from 2 ounces in the lighter sizes to 7 ounces in the heavier. The reason is that the weight of the animal is thrown more upon the front feet than upon the hind, and in order to make the shoes wear equally, it is the practice of the mills to make the front ones heavier.

Horse shoes range in weight from 8 to 60 ounces, and the sizes are numbered from 0 to 8. There are 28 different patterns of shoes on the market, and the number packed in the kegs varies according to the weight — from 28 of the heavier sizes to 200 of some of the lighter ones. A 60 ounce shoe seems excessively heavy, but it has been found futile to put lighter shoes on a 2,500 pound animal, as they cannot sustain the rough usage they receive. It is also bad practice to equip horses weighing 600 pounds, say, with heavy shoes, as in this case the springy foot action would be hampered. The shoes should be suited to the size of the horse, being neither too heavy nor too light.

A good horseshoe should be made of iron which, when fractured, shows long silky fibres of a leaden-gray color, the fibres cohering and twisting after breaking. This is a tough iron and welds easily under the hammer, throwing out very few sparks. The nails should be spaced at equal distances from each other, the holes on one side being exactly opposite those on the other. There should be no cracks on the edges, or slivers. The width of the crease should be such as to let the nails go through easily; and the material should be tough enough to allow the heel calks to be bent without breaking or showing cracks.

The shoes turned out by the factories are usually finished flat, leaving the heel calks to be bent by the blacksmith when he is fitting the shoes; though some shoes are made with heel and toe calks ready to be adjusted to the horse. This is a more expensive variety than the other.

The first machine for making horse shoes, replacing the slow and tedious processes of hand labor, was invented by Henry Burden, in the year 1835; and it has the distinction of being used, with few changes, up to the present day. Improvements have been made in the forming, straightening, punching and grubbing apparatus; but in its main features, the machine is admittedly incapable of betterment, an assertion which can be made of but few of the original devices which stand at the foundation of modern industrial enterprises.



then transferred to the strand rolls and given two passes in the latter. The bar is then inserted in the creaser roll, which puts the crease in, and passes thence to the planisher roll, which serves to smooth the bar and make it of the proper width.

The crease in horse shoes acts to keep the heads of the nails on a level with the top of the shoe, instead of permitting them to project over the top. Figure 1 of the illustrations shows the strand bar with its billet ready for the crease to be put in. Fig. 2 represents the planished bar cut to horse shoe length and ready to be bent into the shape of the shoe. The finished shoe made from the same bar is shown in Fig. 4. Fig. 3 represents

seconds. The warehouse is their next destination, the shoes being packed in kegs holding 100 pounds each. These are sold through drummers to various hardware stores, which in turn sell them to the farriers, and the latter put them on their customers' horses.

It will be seen that although a horse shoe appears to the untutored eye to be simply a piece of bent iron, there is much work to be done on each one before it is ready for use. Nevertheless, such is the rapidity of production of the machinery employed, that as already stated, an output of 600 kegs per day is attained.

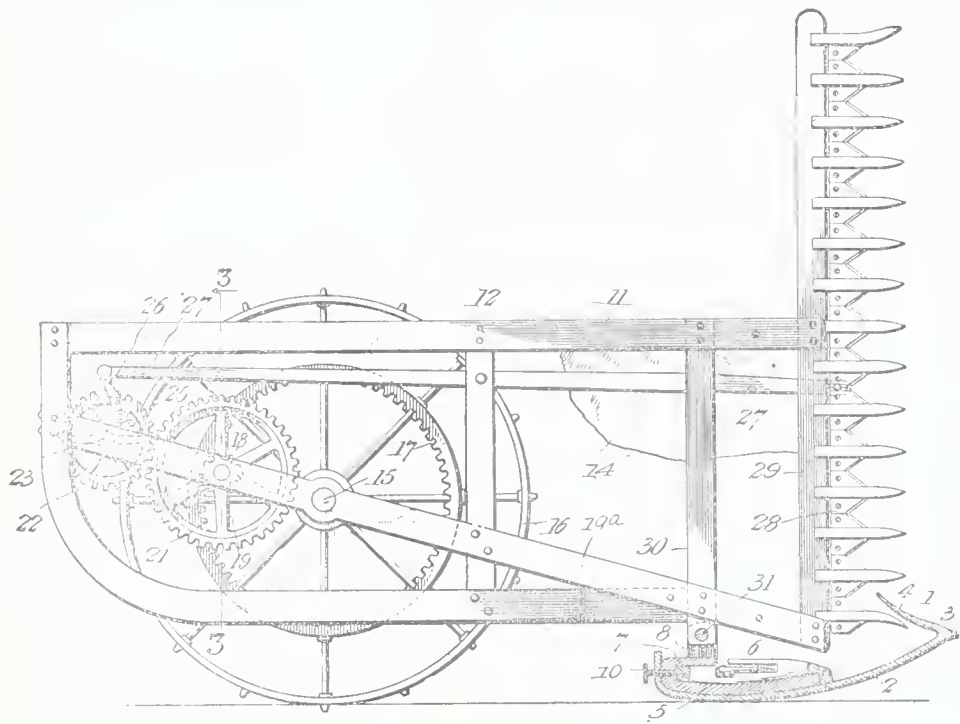
A fact not generally known among those who own horses is that the

CLEVER NEW PATENTS.

MOWING MACHINE ATTACHMENT—WHEEL—COMBINED LEVEL AND GRADE FINDER—PLOW ATTACHMENT.

Mowing Machine Attachment.

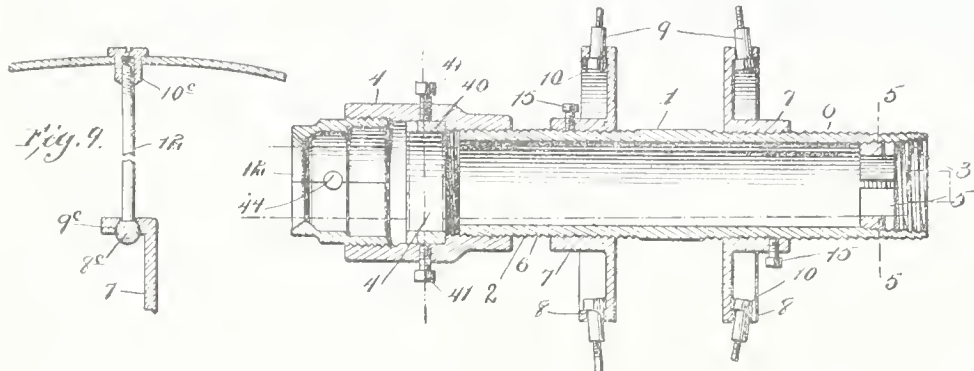
It is a well known fact that very often considerable difficulty is experienced in defining the swath of a mowing machine, particularly when the material has been laid flat by wind or storm. Mr. Jacob Mussell, of Homedale, Idaho, has devised a swath-cutting attachment for mowing machines which clears the track for the next round of the machine, the attachment offering no impediment to the progress of the machine, and being exceedingly simple. In this attachment, there is combined with the sickle-bar a shoe 1, having a point 3 curved in an upward and forward direction and connected detachably with the outer end of the sickle-bar and having upwardly extending lugs 8, to which is connected a right-angled triangular frame 12. A vertically disposed cutting apparatus 28, 29, is supported by the shoe and frame, and a traction wheel 16 within the latter engages the ground, and has connected thereto gearing for transmitting motion to the vertically disposed cutting apparatus. Consequently, the vertical cutting mechanism is operated separately and independently of the ordinary horizontal cutting means. The result is that the swath will be cut in advance of the mowing-machine, and



being thus divided from the standing crop, will be more efficiently and easily operated upon by the horizontal cutting apparatus. The weight of the frame 12 added to that of the gearing contained within said frame, is sufficient to cause the traction-wheel 16 to hug the ground with sufficient tenacity to operate the vertical cutting apparatus, while the latter is so disposed as to render entanglement with the crop practically impossible. The guard 4 of the shoe serves to elevate the material that is to be operated upon to the lower teeth of the vertical cutting apparatus, and the latter is thus enabled to operate without retarding the progress of, or imposing any severe additional draft upon, the machine.

Wheel.

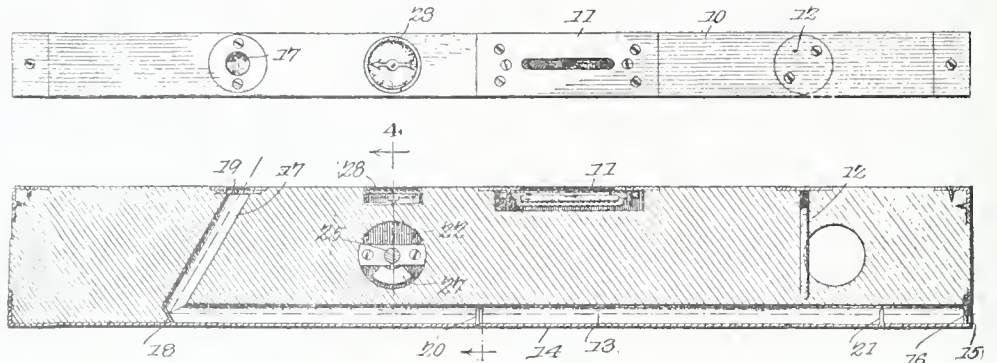
A novelty in the art of vehicle wheels is disclosed in a patent granted to Mr. Franklin P. White, of Shallotte, N. C. A sectional view through one form of hub, and a detail section showing a spoke, clearly illustrate the essential features of the present invention. It will be noted that the hub 1 is tubular in form and has its end portions exteriorly threaded, the threads extending in opposite directions. Screwed upon the end portions are sleeves 7



having annular flanges in which the inner ends of the spokes are engaged. The spokes are preferably threaded into nipples 9 that pass through the flanges. Their outer ends are threaded into nipples in the rim of the wheel. By this arrangement it will be seen that, if the hub is turned within the sleeves, or the sleeves are turned about the hub, said sleeves will move towards or from each other so that the wheel may be tightened or loosened. Under normal conditions the sleeves and hub are held against relative rotation by set screws 15.

Combined Level and Grade Finder.

An ingenious instrument in the form of a combined level and grade finder for use in building operations, road grading, and the like, has been patented by Mr. Edward Helb, of Railroad, Pa. The body of the instrument is in the form of an ordinary spirit level body, having vertical and horizontal spirit bubble tubes therein. A magnetic compass is located in one edge of the body, and a weighted inclinometer has an exposed end visible at one side of said body. Extending longitudinally through the lower portion of the body is a sight bore or tube communicating with an inclined opening extending trans-



versely through the body, a mirror being located at the juncture of the opening and tube. Sights 20 are arranged within the tube and in proper alignment, whereby an operator can sight the instrument upon a distant object, and can then read the direction of said object and the grade or inclination between the same and his station. By this means a very complete, simply-constructed, and accurate implement is provided, which may be inexpensively manufactured, and furnished at only a small increase in price over an ordinary spirit-level.

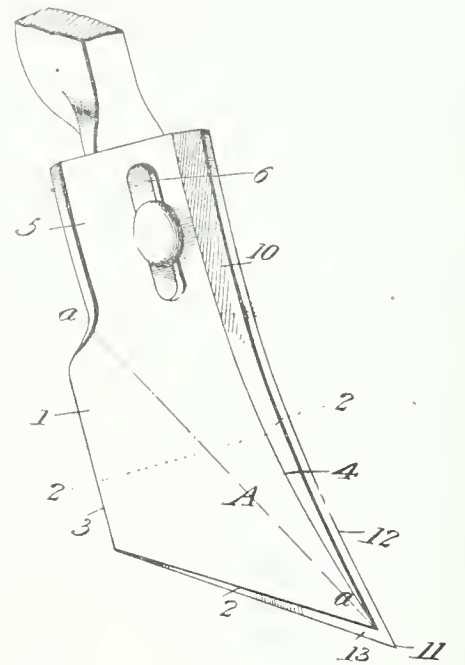
Plow Attachment.

A simple plow point having novel features is the subject matter of a patent granted to Mr. Thomas P. Wells, of Union, Mississippi. The object in view is to provide a point or share capable of being used independently by itself, or in connection with ordinary mold-boards, as an attachment whereby the cutting of the soil and turf shall be facilitated, thereby greatly improving the operation of any plow to which it may be attached.

The improved plow attachment is intended and adapted to be made from a single piece, the material preferred being sheet-steel, the blade which constitutes the point as well as the flange which constitutes the cutter being extremely thin and light, and yet of sufficient strength to resist all ordinary wear and usage.

As shown in the accompanying illustration, the device consists of a flexible resilient blade 1, having a sharp point and an upturned wedge-shaped flange 10, the point of which merges with the extreme point 11 of the blade. The flange is ground to form a cutting edge 12 the full length thereof, while the lower edge 13 of the blade is likewise ground sharp. The furrow side A of the blade, moreover, is drawn to a thin and readily bendable condition from the points a, a, whereby the blade is enabled to flex and adapt itself to the shape of any plow in conjunction with which it may be used.

When in operation, the surface of the soil or turf will be first engaged by the point 11 of the blade 1 and the flange 10. As the operation progresses, the surface of the soil or turf will be engaged by the cutting edge 12 of the flange 10, which latter will also readily



cut roots and similar obstacles that may be encountered. It is obvious that the device may be set so as to cut into the soil to any desired depth, so that when used in connection with other plows, it may be characterized as a "subsoiler," the slot 6 for the attaching-bolt providing for the necessary adjustment of the device.

PATENTS, CAVEATS, TRADE-MARKS, COPYRIGHTS, AND DESIGNS. TWENTY-FIVE YEARS PRACTICE.

Send Your Business Direct to Washington, Saves Time and Insures Better Service.

My office is close to U. S. Patent Office. FREE report as to patentability made. Personal attention given. Book "How to Obtain Patents," etc., sent free. Patents procured through E. G. Siggers receive special notice, without charge, in THE INVENTIVE AGE, illustrated monthly—seventeenth year—terms \$1.00 a year.

E. G. SIGGERS,

918 F STREET NORTHWEST,
WASHINGTON, D. C.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

BULTE v. IGLEHEART BROS. et al.

(Circuit Court of Appeals, Seventh Circuit.

April 11, 1905.)

1. APPEAL—PARTIES—ASSIGNMENT.

Where, during the pendency of an action by a firm to restrain an alleged infringement of a trade-mark, one of its members filed an amended complaint alleging an assignment to him of the other member's interest in the subject-matter of the suit, but the master found that the alleged assigning member was still interested, that he had agreed to assume one-half the cost and expense of the suit, and that the damages recovered by or against the firm were to be assumed by the two members in equal proportions, both were necessary parties to an appeal from a decree dismissing the bill.

2. TRADE-MARKS—ASSIGNMENT—VALIDITY.

An assignment of a flour trade-mark, disassociated from the business in which it was used and in which it had acquired its value by association with the manufacture of flour by the originator and his successors, was void.

3. SAME—PLEADING.

Complainants in an original bill to restrain infringement of a flour trade-mark alleged that L., under whom they claimed, originated it in 1865, and described it as a circular label having thereon a circle within which was a smaller circle, and within this a pictorial representation of a body of water on which was a white swan; that above the picture was the name of the manufacturers, and beneath the words "White Swan," the name of the manufacturers, the location of manufacturers' plant, and at the top the figures "196." Thereafter complainants filed an amendment asserting that in the year 1880 they originated the brand subsequently mentioned, to wit, the picture of a white swan together with the words "White Swan," in a manner entirely independent of any of their said predecessors, and had continuously used it in their business up to and including the date of filing the bill. Held that the allegations were inconsistent, and that the amendment constituted an admission that complainants pirated the mark previously belonging to L. and his successors.

4. SAME—PRIOR USE.

Where at least 15 years prior to complainants' appropriation of a flour trade-mark containing the words "White Swan" and the picture of a swan floating on water, such words had been quite generally used, and the picture of the swan, etc., had been adopted and used by at least two other firms, complainants were not entitled to claim that they were the originators of the brand, though they changed the arrangement of the marks and picture in immaterial respects.

5. SAME—UNFAIR COMPETITION.

Where complainants had no exclusive right to the use of the picture of a white swan floating on water, or to the name "Swan," as applied to a flour trade-mark, and there was no proof of a single instance in which the public had been deceived by the points of similarity of defendant's trade-mark, containing such name and symbols, defendant was not guilty of unlawful competition.

HYGIENIC FLEECE UNDERWEAR
CO. v. WAY.

(Circuit Court of Appeals, Third Circuit.
May 10, 1905.)

1. UNFAIR COMPETITION—INDIVIDUAL NAME—RIGHT TO USE.

Defendant Way, while manager of a knitting company, invented a muffler, which he patented. He permitted a corporation to manufacture and sell the article under the name "Way's Mufflet," without objection, during his connection therewith, until the goods became well known in the market under the name "Way" or "Way's"; whereupon, not having sold his patent, defendant severed his connection with the company, and himself began manufacturing and selling the article under the name "Way's Mufflet." Held, that both the successor of the corporation and defendant were entitled to use the name "Way" or "Way's" in the manufacture and sale of such muffler, provided that such words were used in connection with others clearly indicating the manufacturer of the particular article.

2. SAME—PATENTS—OWNERSHIP.

Where both complainant and defendant were entitled to use the name "Way" or "Way's" in connection with a patented

muffler, but defendant was the owner of the patent, the use of the words "manufactured and owned by Hygienic Fleece Underwear Co. Inc. Phila.," in connection with such words, by complainant, was objectionable in including the words, "and owned," as they indicated that complainant alone had the right to make and sell goods of the kind to which they related.

3. SAME—TRADE-MARK—DESCRIPTIVE NAME.

A manufacturer of neck scarfs could not acquire a trade-mark in the word "mufflet," so as to preclude the use of the word "mufflet," by another, such words being merely descriptive of the article.

4. SAME—"PATENTED."

Where defendant, while in the employ of complainant's predecessor invented and patented a neck scarf, and complainant thereby acquired an implied license to manufacture and sell the same, but defendant never transferred the patent, complainant had no right to use the word "patented" on neck scarfs manufactured by it.

5. SAME—PACKAGES—SIMULATION.

Defendant, immediately after beginning the manufacture of patented neck scarfs, adopted a new and characteristic top for the pasteboard boxes used by him, consisting of a white ground, on which were printed in dark blue ink several figures of men and women wearing the muffler, indicated by a dotted line pointing to it directly, with the words, "There it is." The lid also contained the words, printed in blue ink: "A perfect chest and throat protector. Don't go over your head. Way's Mufflet. For men, women and children. As easily put on as your hat. A sure guarantee against colds." Some of such words and figures had been previously used by complainant's successor, but the combination was wholly new; after which complainant began using a similar lid, printed in a slightly lighter shade of blue, but almost identical in appearance, showing the muffler on figures, with the dotted line, and the phrase, "That's it," the other words being: "Way's Mufflet. Don't go over your head. Way's Mufflet. For men, women and children. As easily put on as your hat. Way's Mufflet." Held, that the differences in complainant's package were insufficient to avoid confusion, and that the use of such package constituted unlawful competition.

KOTTEN v. KNIGHT.

(Circuit Court, D. Maryland. March 29,
1905.)

PATENTS—INVENTION AN INFRINGEMENT—PNEUMATIC SURFACER.

The Kotten patent, No. 701,580, for a pneumatic surfer for dressing the surface of stone embodies a combination of elements some of which were old, but which resulted in producing the first entirely successful machine in the art, and discloses invention. Also held infringed.

GENERALELECTRIC CO. v. CAMPBELL.

(Circuit Court, D. New Jersey. May 12,
1905.)

1. PATENT—DEMURRER—WHEN SUSTAINABLE.

A demurrer to a patent can be sustained only when the question of invention is free from doubt. There must be in the mind of the court an absolute conviction of the lack of invention, and if there is any doubt on this point the case must be decided adversely to the demurrant.

2. SAME—LAMPS.

Demurrer to patent No. 726,293, for new and useful improvements in exhausting lamps, overruled.

KEASBEY & MATTISON CO. v. AMERICAN MAGNESIA & COVERING CO.

(Circuit Court, E. D. Pennsylvania. May 2,
1905.)

PATENTS—VALIDITY—MACHINE FOR MOLDING TUBES.

The Keasbey patent, No. 397,860, for a machine for molding tubes, held void on the ground that the patentee was not the true inventor.

WESTERN TELEPHONE MFG. CO. v. AMERICAN ELECTRIC TELEPHONE CO. et al.

(Circuit Court, N. D. Illinois. March 7,
1905.)

PATENTS—SUPPLEMENTAL BILL FOR INFRINGEMENT—SUCCESSOR OF DEFENDANT.

Complainant obtained a decree against an Illinois corporation for an injunction and accounting for infringement of a patent, and thereafter filed a petition, in the nature of a supplemental bill, against a New Jer-

sey corporation having the same name as the original defendant, alleging that, pending the suit, the latter had transferred to it all of its property and good will, receiving payment partly in cash, but principally in the stock and bonds of the purchasing company. It also alleged that the latter company, after the transfer, conducted the defense in the suit, and prayed that it be brought under the injunction, and also be adjudged to pay whatever damages should be recovered on account of its own and its predecessor's infringement. Held that, while the petition stated ground for the injunctive relief, it showed no right to the other relief prayed for, and was, multifarious, being in its latter aspect essentially a creditors' bill.

KRONTHAL WATERS, Limited, v. BECKER.

(Circuit Court, E. D. Pennsylvania. April 8,
1905.)

1. UNFAIR COMPETITION—DISTINCTIVE DRESSING—TRANSFER OF RIGHT BY SALE OF BUSINESS AND GOOD WILL.

Although the name under which an article is sold may be one which cannot be appropriated as a technical trade-mark, yet where it has been used for many years in connection with a style of package and labels which together constitute a distinctive dressing for the article, by which it has become well known to the trade and to consumers, the right to the exclusive use of such dressing is one which passes with the sale of the assets and good will of the business, and in which the purchaser is entitled to protection against a fraudulent imitation.

2. SAME—IMITATION OF DRESSING.

Complainant and its predecessors in ownership have for many years bottled and sold the waters of a well-known mineral spring in Germany under the name "Blue Label" using therefor a uniform and distinctive dressing consisting of a green bottle having thereon a blue neck label of peculiar shape, bearing the words "Blue Label," and a body label containing an elliptical blue panel with white lettering surrounded by a white field with blue lettering. Such water became widely known throughout the United States under the name of "Blue Label Mineral Water." Defendant commenced the bottling and sale of a different water, using bottles of the same shape, size, and color, having thereon neck and body labels of the same shape, size, style, and colors, but having different words thereon, the resemblances between the two as a whole being much more noticeable to a person of ordinary intelligence and observation than the differences, and such as were calculated and evidently intended to deceive ordinary purchasers. Held, that such simulation of complainant's dressing, aside from any question of trade-mark or copyright of labels, constituted unfair competition, against which complainant was entitled to protection by injunction.

LITTLETON et al. v. FISCHER.

(Circuit Court, S. D. New York. March 15,
1905.)

COPYRIGHT—INFRINGEMENT—PRELIMINARY INJUNCTION.

Preliminary injunction will not issue against the publication of defendant's arrangement of a musical composition, though it is practically a reproduction of complainants' copyrighted arrangement thereof; complainants having also published uncopyrighted editions of the composition, the character and extent of the dedication to the public through which cannot be determined on the affidavits and inspection of the respective scores, so that it is impossible to decide the extent of any trespass by defendant on the rights secured to complainants by the copyright, and it not appearing that defendant is unable to respond in damages.

DIAMOND STONE SAWING MACH. OF NEW YORK v. BROWN et al.

(Circuit Court of Appeals, Second Circuit.
April 19, 1905.)

PATENTS—INFRINGEMENT—STONE SAWING MACHINE.

The Williams patent, No. 429,874, for a stone sawing machine, was not anticipated, and discloses invention. Claims 1, 2, and 3 also held infringed.

BOSTON TRAVELER CO. v. PURDY.

(Circuit Court of Appeals, First Circuit.
May 16, 1905.)

COPYRIGHT—INFRINGEMENT—RECOVERY OF PENALTY.

Rev. St. § 4965, as amended by Act March 2, 1895, c. 194, 28 Stat. 965 [U. S. Comp. St.

1901, p. 3414.] relating to the recovery for infringement of copyright, as amended by the proviso added by the amendment that, in case of infringement of copyright of a photograph, the recovery shall not be less than \$100 nor more than \$5,000, so far as the rule of *Bolles v. Onton*, 20 Sup. Ct. 94, 175 U. S. 202, 41 L. Ed. 156, is concerned.

CURTAIN SUPPLY CO. v. KEELER.

(Circuit Court of Appeals, Second Circuit.
April 19, 1905.)

PATENTS—INFRINGEMENT—SHADE HOLDING DEVICE.

The Forsyth patent, No. 559,446, for a shade-holding device, claims 3 and 4, construed, and held valid, but not infringed by a device in which the head or contact part is made throughout of one material.

AMERICAN ELECTRIC NOVELTY & MFG. CO. v. HOWARD ELECTRIC NOVELTY CO.

SAME v. STEIN & LANGLOS ELECTRIC MFG. CO.

(Circuit Court of Appeals, Second Circuit.
April 19, 1905.)

PATENTS—INVENTION—ELECTRIC HAND LAMP.

The Misset patent, No. 617,592, for an electric device used in a hand lamp, is void for lack of invention.

2. SAME—ELECTRIC BATTERY.

The Hoggson patent, No. 520,429, for an electric battery which is portable and adapted to a number of uses where a small battery is desired, was not anticipated, and discloses patentable invention. While the invention is not a fundamental one, the device is useful, and within the narrow sphere of its usefulness the patent is entitled to liberal treatment and a limited range of equivalents. Also held infringed.

WEST BOYLSTON MFG. CO. et al. v. WALLACE.

(Circuit Court, D. Massachusetts. May 10,
1905.)

PATENTS—TENTING CLOTH—VALIDITY—NOVELTY.

Patent No. 718,499, for tenting cloth, to be used to cover tobacco and other plants, held void for want of novelty, both in the elements used to constitute the product, and in the combination thereof.

THOMSON-HOUSTON ELECTRIC CO. v. DAYTON FAN & MOTOR CO. et al.

(Circuit Court, S. D. Ohio, W. D. Nov. 2,
1905.)

1. PATENTS—INFRINGEMENT—ELECTRIC MOTORS.

The Thomson patent, No. 363,186, for an electric motor, held valid, as against the defense of insufficiency of description, and also infringed.

2. SAME.

2. The Thomson & Wightman patent, No. 399,801, and the Thomson patent, No. 428,650, both for improvements on the electro-motor of the prior Thomson patent, No. 363,186, construed, and both held infringed.

MICA INSULATOR CO. v. UNION MICA CO. et al.

(Circuit Court, D. New Jersey. May 2,
1905.)

1. PATENTS—INFRINGEMENT—MICANITE.

The Dyer patent, No. 483,646, for a process of making artificial mica sheets for electrical insulation, called "micanite," by uniting a series of layers of irregularly shaped mica scales, laid to overlap, by means of varnish, and under pressure, until a sheet of the required thickness is formed, was not anticipated, and discloses patentable invention. Also held infringed as to claims 1 and 2.

2. SAME—VALIDITY—DEFENSE OF PRIOR USE.

Evidence considered, and held insufficient to invalidate a patent on the ground of prior use.

3. SAME—PROCESS OF MOLDING MICA SHEETS.

The Jefferson patent, No. 483,653, claim 2, for a process of molding an artificial mica sheet, is void for anticipation, if construed as a continuation of the Dyer process of making such sheets, being covered by claim 2 of the Dyer patent, No. 483,646, and for lack of invention if otherwise construed.

MECHANICAL INVENTIONS AND DESIGNS

Patents for which have been procured
through the Patent Soliciting Office
of E. G. Siggers, Patent Lawyer,
Washington, D. C.

James Degelleke, Sodus, N. Y. Bench Vise.—It is the aim of the present invention to provide a bench vise capable of firmly gripping a board or plank, and of supporting the same in an upright position on one edge while the board is being planed or otherwise operated on. The device comprises a longitudinal lever fulcrumed at an intermediate point, an adjustable jaw connected with one arm of the lever, and a cam lever located at the other arm of the said lever and arranged to engage the adjustable jaw.

Benjamin F. Fowler, Minneapolis, Minn. Rocking Horse.—The present invention relates to a traveling rocking horse, and it is provided with ingenious means for enabling the distance traveled by it to be readily controlled. The toy is composed of front and rear sections, hinged together and provided with front and rear legs to which are secured front and rear rockers. Means are provided for yieldably and adjustably connecting the rockers to limit the independent movement thereof.

Benjamin F. Fowler, inventor; Bing Burner Co. assignee, Minneapolis, Minn. Lamp Burner.—The structure covered by this patent is a burner having a novelly arranged glass cone. While burners with glass cones have been constructed before, the arrangement of the present burner is such that, when the light is turned low, the rays thereof will still radiate freely. To this end, the ordinary platform or support is employed, and hinged thereupon is a metallic collar terminating substantially in line with or below the upper edge of the wick tube. Mounted on this collar is a transparent cone, constituting the sole dome for the wick. Thus, whether the light is turned up or down, the rays therefrom can pass freely through the cone and much better results are secured than with the ordinary metallic structure.

Charles H. Barton, Henry E. Henriksen, Jules S. Cousins, Cramer L. Mathews, inventors, Houston, Texas; Gilbert L. Bowe, assignee of one-half interest, Tyler, Texas. Hydrocarbon Burner.—This patent covers a hydrocarbon burner adapted to utilize crude oil as a fuel, and capable of effectively converting the same into gas under the heating action of the burner itself. It comprises a horizontal generator, means located at one end of the generator for supplying the same with oil, a removable closure for the opposite end of the generator, and a removable open top pan or receptacle arranged within the generator. It provides for taking gas from the generator and carrying the same to the burners in such manner as to preclude all possibility of oil collecting in the pipe connections between the generator and the burners, whereby only pure gas is supplied to the burner, and the latter is never choked up or obstructed by oil or other foreign matter.

Harry Harden, London, Ohio. Latch.—The object of the present invention is to provide a latch capable of universal application, wherever it is desirable to hold a movable member to a relatively fixed member, whereby it will be adapted for use on barn-doors, gates and the like, and at the same time be susceptible for use as a shaft support. It comprises a latch plate having projecting lugs, a pivotally mounted engaging member

connected with the plate, and a spring bearing against the engaging member and provided with opposite sides located within the projecting lugs, whereby the spring may be removed without detaching the plate.

John T. Jardine, Paso Robles, Cal. Self-Leveling Grain Cleaner.—The invention relates to combined harvesters and separators which have tiltable shoes, and it is the object of the said invention to provide means for maintaining the shoe automatically in a predetermined position when the machine is ascending or descending inclines, means being also provided for quickly changing the inclination of the shoe with relation to the machine. The automatically operating device is provided with a pendulum fulcrumed independently of the shoe, but in longitudinal alignment with the axis thereof, and adjustable means are employed for connecting the shoe with the operating device.

Virgil T. Grabs, King, N. C. Sectional or Knockdown Kitchen Safe.—It is the aim of the present invention to provide a sectional or knockdown kitchen safe, having means for detachably interlocking the sides with the front and back to enable it to be quickly set up for use. Means are also provided for preventing the parts from accidentally moving vertically or horizontally on each other when the kitchen safe is in use. The kitchen safe comprises front and rear sections, sides having matched interlocking overlapped portions formed by longitudinal tongues and grooves, and horizontal pieces for interlocking such matched parts and for holding the same against movement on each other.

George Miller, Montague, Mich., and William Butler, Shelby, Mich. Shipping Crate.—The crate of the present invention, which is designed for shipping fruit, possesses all the advantages of a barrel, and in addition thereto, is capable of being returned to the shipper in a collapsed or knockdown condition. It is also provided with means for quickly converting it into either a ventilated or non-ventilated crate. The crate is composed of sides of imperforate sheets of veneer spaced apart at the corners of the crate to provide ventilating openings, exterior frames secured to the outer faces of the sides and bridging the ventilating openings, and heads arranged within and closing the ends of the crate. The crate presents a smooth interior, and is adapted to receive a removable filler for covering the ventilating opening. When the filler is detached, the crate is changed from a non-ventilated crate to a ventilated one.

Nelson H. Sturgis, Guthrie, Okla. Ter. Wire Stretcher.—This patent covers a wire stretcher adapted for stretching either a single wire or a number of wires simultaneously, and after stretching the wire or wires, it holds the same until they are secured to a fence post. It also provides means for independently gripping the fence wire, so that after a plurality of wires have been stretched, one may be released or detached without affecting the tension of the other wires. The wire clamp comprises a shank having its forward end laterally enlarged to form a head with its opposite edges serrated, longitudinal seats at opposite sides of the head, and wedges working in the seats for engaging the wires.

Nelson H. Sturgis and Mathew S. Allen, Guthrie, Okla. Ter. Mail Box.—The mail box is intended for rural free delivery service, and comprises a receptacle having a hinged cover, the interior of the receptacle being provided with suitable compartments for the mail matter, as well as stamps and

change. On the opposite ends of the box are provided indicators, one of which is for the purpose of showing whether or not there is mail in the box, the other having a weather signal. These indicators are in the form of disks located between the walls, the outer walls having openings through which the indicators are exposed. The indicators are protected by the cover and are operated with suitable keys.

Anna M. Schneider, Sacramento, Cal. Toilet Kit.—The invention relates to a combination article composed of various toilet accessories, readily obtainable for use when desired. A brush is employed having a handle provided with longitudinally disposed recesses in one of which a comb is placed. A receptacle has a handle that fits in the other recess, the back of the receptacle being provided with a mirror. A cover for the receptacle hinged thereto has a pin cushion, while the receptacle itself is divided into compartments for containing different toilet articles. The structure when put together is compact and occupies but little space, yet all the parts can be removed and employed, the device thus being peculiarly useful to travelers.

Harry N. Weaver, Lancaster, Pa., and Joseph E. Weaver, Darby, Pa. Fifth Wheel.—The object of this invention is to provide a novel and simple combination of parts, wherein the friction is reduced to a minimum and the wheels are permitted to assume different relative angular relations with respect to the body without twisting or straining the latter. The usual axle is provided with cap sections which have their inner ends spaced apart, a boxing being fitted between the ends and also comprising sections, both of which bear upon the axle and have coacting cavities in their adjacent upright faces. A head block, secured to the spring, has a depending shank threaded into its under side, which shank has a ball enlargement journaled in the cavities of the box. Clips surround the boxing sections, the adjacent end of the cap sections and the axle. The ball-and-socket joint, thus provided, permits free movements of the parts.

William S. Russell, Toledo, Ohio. Steam Shovel.—This invention marks an important advance in the art, and relates to a machine for excavating earth or other material by means of a dipper so constructed as to take up a load, elevate it, swing it to either side of the machine, dump it, and then return to position to take another load. The steam shovel, which has increased traction power to enable it to travel rapidly over the ground and ascend steep grades, is adapted to be turned around completely or partially within a comparatively small space, and the steering is effected by changing the position of the rear axle, which is also adapted to be tilted vertically to run on uneven ground without tilting the machine. The machine embodies a frame having front wheels provided with gears, a propelling shaft composed of two sections provided at their outer ends with pinions meshing with the gears, gearing connected with one of the sections of the propelling shaft, and a clutch mounted on the other section of the shaft for coupling and uncoupling the sections. The rear axle, which is pivotally connected with the frame, is capable of a vertical rocking movement and a horizontal rotary movement. The rotary ring, which is mounted on the frame, is provided with means for guiding the rear axle in its vertical rocking movement. This ring is provided with a curved rack to enable it to be partially rotated by the steering gear for changing the direction of the machine.

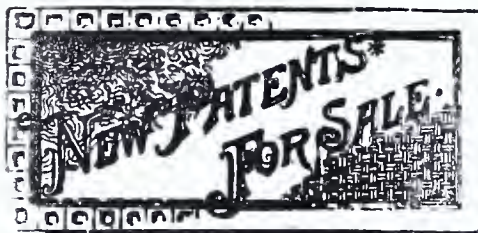
John Crowley, Jacksonville, Fla. Horse Shoe.—This invention relates to an improved method of making horse shoes, together with the toe and heel calks, and it enables the same to be constructed of a single piece of bar metal, without drawing out the same and thereby weakening the shoe at the toe calk, which is subjected to the greatest wear and strain. The invention is also designed to enable a horse shoe of this character to be constructed by a blacksmith with the ordinary tools, such as a hammer, sledge, creaser and punch. The method consists in curving a bar of greater width than thickness between its ends and twisting the same at the terminals of the curved portions to provide a thick front portion and wide side portions, and then shaping the central and side portions into a shoe.

Herman H. Brandes, Corydon, Ky. Pencil Sharpener.—This patent covers a unique improvement in pencil sharpeners, the device being readily applied to a tablet, and secured to the same by the fastening means which bind the leaves of the tablet together. It enables a pencil to be quickly and accurately sharpened, and permits the shavings to be readily removed from it. The sharpener consists of a blade having a longitudinal cutting edge, and grooved at the ends thereof to form outwardly extending ribs and to provide projecting cutting portions.

Henry J. Parks, inventor, Houston, Texas; R. C. Darrough, assignee, same place. Pump.—The pump of this patent enables the water to be lifted to the desired height at the expenditure of a minimum amount of power, and it affords a continuous flow of water. It consists of an upright pump casing having a plurality of communicating chambers offset from each other and arranged in a vertical series, in connection with a plurality of vertically disposed wheels arranged at the lower ends of the chambers, and having central inlets and peripheral discharge openings, the inlet of one wheel being extended into the upper end of the adjacent chamber, so as to receive its supply from the peripheral discharge openings of the other wheel.

James M. Martin, Knoxville, Tenn. Cushioned Rocker.—It is the aim of the present invention to enable a cushion to be readily applied to the bottom of a rocker, and to effectually prevent the cushion from being displaced, especially when a chair is being dragged sidewise across the floor. The rocker is provided with a longitudinal groove, and the cushion has a body portion, which is rounded upon its underside and flat upon its upper side to fit the lower face of the rocker. The cushion has a reduced neck portion, which connects the body portion with an enlarged head, and the latter is seated in a groove of the rocker. The elasticity or cushioning effect may be increased by providing grooves or channels in the upper face of the body portion of the cushion, and also by means of a longitudinal bore opening through the center of the body portion.

James M. Martin, inventor; Cary F. Spence, assignee, Knoxville, Tenn. Trunk.—This invention relates to that class of trunks in which trays, and tray-supporting means are employed, which means will elevate the trays when the cover of the trunk is moved to open position. The tray-elevating means comprises supporting bars having notches, with standards pivoted to the bars and to the body of the trunk. Links, pivoted to the bars, are also pivoted to the cover. The tray is supported on the bars by having outstanding pintles that engage in the notches, and the arrangement is such that when the cover is open and the tray elevated, said tray may be swung into the cover, so that it is entirely out of the way.



Advertisements inserted in this column for 15 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—Patent No. 787,734. Vegetable Cutter, dated April 18, 1905. Has no equal on the market, and is a success. Will sell only for cash, or outright sale. Address, J. J. Drong, Box No. 155, Browerville, Minn. jan

FOR SALE—Patented No. 794,328. End gate for wagon beds, dated July 11, 1905. A rodless wagon end gate. Will sell for \$5,000. Address, Henry Weber, Fairfield, Ill. jan

FOR SALE—Patent No. 783,862, dated Feb. 28, 1905. Hapgood adjustable folding bias measure. Circulars sent on application. Offers solicited. Address, Miss Alice L. Hapgood, Bellows Falls, Vt. oct

FOR SALE—Patent No. 793,170, dated June 27, 1905. Attachment for animal traps to lift the animal from the ground when caught. Will sell outright or lease on royalty. Address, Charles Baer, Mendon, Michigan. dec

FOR SALE—Patent recently issued. Almost every home uses from ten to fifty. Has no equal. Simple. No new machinery needed to manufacture same. A splendid investment. Address, E. B. Orr, East Liverpool, Ohio. dec

FOR SALE—Patent No. 799,729. Hay Press. Have pressed thirty bales an hour with one horse. Presses can be made for \$25, and will sell for double that amount. Address, Albert Hailey, Ruston, La. dec

FOR SALE—Patent No. 789,062, dated May 2, 1905. The most practical strainer for milk and other liquids that has been devised. Address, Arah W. Prescott, Manchester, N. H. dec

FOR SALE—Patent No. 796,071, Aug. 1, 1905. Poultry Folding Coop. Perfect folding done easy and quick. Will sell cheap or lease on royalty. Address, H. R. Franke, Brenham, Texas, R. No. 8. dec

FOR SALE—Patent No. 777,443, dated Dec. 13, 1904. Calf Weaner. Self-adjustable. Considered the best calf weaner on the market. Will sell outright, or state rights. Can be manufactured very cheap. Price for same O.K. Address, A. N. Sorenson Co., Gustave, S. D. dec

FOR SALE—Patent No. 791,298. Ratchet Monkey Wrench. Can be set at any angle, to make right, left, or end wrench. Can turn up nut with ten-inch wrench in a five-inch circle. Will sell patent outright or assign the right to manufacture the invention. Address, Theo. F. Avres, Allentown, Pa. dec

FOR SALE—Patent No. 672,897, dated August 30, 1901. Closure for mail sacks. Simple and durable, applicable to all types of sacks. Meets the wants of the postal officials. Address, J. H. Giltner, Muir, Ky. dec

FOR SALE—Canadian patent No. 91,335. An entirely new tensioning device for buck, hack-saws, etc. Tension relieved when not in use. Fits any saw; saves the frame. Will sell patent or lease on royalty. Address, D. R. Klassen, Gretna, Man, Canada. dec

FOR SALE—U. S. Patent No. 795,477. An improved rail joint, without nuts or bolts. The greatest invention and device ever brought before the public. Manufacturers of R. R. devices especially invited to correspond with the inventor. Address, C. M. Bennett, No. 1751 Main St., Wellsville, Ohio. dec

FOR SALE—U. S. Patent. Improvement on plows and heels sweeps. A plow and heel sweep that will not turn on heel bolt, making them self-supporting. Will save two-thirds of heel bolts now in use. Will sell outright or by states or on royalty plan. Address, Richard P. Rodgers, R. F. D. No. 3, Spartanburg, S. C. dec

FOR SALE—Patent No. 798,084 dated Aug. 29, 1905. Spindle oiler for looms. The greatest money saver for manufacturers ever invented. Address, Charles F. Thompson, Box 452, Oswego Falls Station, Fulton, N. Y. dec

FOR SALE—My U. S. and Canadian patent right on an improved commode. Fills a long felt want. Nothing to equal its convenience in sickness, or its usefulness to cripples. For additional information, address, Martin T. White, Chestnut Bluff, Crockett Co., Tenn. nov

FOR SALE—One-half interest in my patent. Combination Salt and Pepper Shaker. A winner. Need capital to push it. Will be used in every house in the country. Write for full particulars, address, E. C. Hurlbert, St. Johns, Oregon. nov

FOR SALE—State rights. Patent No. 764,307. Flower Pot Stand. Illinois reserved. This is a good side line for manufacturer. An article that is in place at any time of the year. For full particulars and cut, address, F. Scabill, Joliet, Illinois. nov

FOR SALE—U. S. Patent Safety Car Coupler, No. 788,982, dated May 2, 1905. Safe to uncouple and set to couple with one lift of lever. Can be made single for coaches and double automatic for freight cars of any capacity. Can uncouple moving or at standstill. Address, Wm. D. Worthington, Mays Lick, Ky. nov

FOR SALE—Patent Road Grader and Scraper. Easy on man or boy, and team, and can make road fast. Address, S. R. Johnson, Winston, Mo. nov

FOR SALE—Canadian Patent No. 89,283, also No. 94,802. Fence Stays. Simple and strong. Can be retailed at an average cost of ten cents. Address, J. M. Sutherland, Sioux Falls, S. D. dec

FOR SALE—Those wishing to buy a simple and inexpensive device, patented July 11, 1905. No. 794,448, a nut wrench, combining saw driver, and nail and bolt extractor with wire cutter added. Address, Bulus S. Boggs, Newry, S. C. nov

FOR SALE—Patent No. 792,931, dated June 20, 1905. Safety Pitchfork Holder. Neat and practicable. The first of its kind for the market. Sells to farmers, liverymen, and all who own pitchforks. A snap for novelty manufacturers. Address, Charles Schade, Cropsey, Illinois. nov

FOR SALE—The animal poke, known as the Anti-Creeper Button, patent No. 758,213. One of the best means to prevent cattle from creeping through barbed and smooth wire fences. Address owner, O. Martinson, No. 1013 W. Douglas Avenue, Wichita, Kansas. nov

FOR SALE—Patent No. 788,707. Electric Light Tower for city lighting. The greatest invention and money-maker ever offered for sale. Will sell entire right, or on royalty. Make me an offer. Will demonstrate this device and give close figures as to how it retails. Address, S. T. Coverstone, Mt. Pleasant Michigan. nov

FOR SALE—The chance of your life to make money. New patent just issued; a useful household necessity. A fast seller, with big profits. Territory for sale. Come quick, Lock Box 172, Evergreen, Ala. nov

FOR SALE—Patent No. 794,870, dated July 18, 1905. Automatic Mail Box. Perfect in every detail. Operates independent of carrier. Is sure to meet the approval of carrier and patron. Will sell cheap. Address, G. E. Lofland, Urbana, Indiana. dec

FOR SALE—Patents No. 774,693, Steering Apparatus for Ships, issued Nov. 8, 1904; and No. 755,928, Heat Regulator, March 29, 1904. Address, John Peterson, Lake George, N. Y. dec 05

WANTED.

WANTED—Patent No. 793,856, dated 1905. Infants' Toilet Box. Leather covered box—apartments for all articles—needed for bath—trays for cloth and safety pins. Suitable for lady's satchel or home use. Address, Study Box Company, 624 E. Wayne St. Fort Wayne, Indiana. jan

WANTED—Steam users equip your engines with a Janicke Slide Valve. Address, Gus. A. Janicke, R.R. No. 2 Louisville, Ky. nov

INVENTORS OF SHEET METAL, WIRE AND PLASTIC MATERIAL GOODS.

The Wiet-Goethe Company of Sacramento, California, owns the best tool room and plant on the Pacific Coast, for the manufacture of goods made from sheet metal, wire and plastic materials. It makes a specialty of the manufacture of patented articles only, and will be pleased to receive from inventors, particulars of articles of this character. The plant is fully equipped in every particular, and offers to the inventors an unusually good proposition. This will largely apply to men of small capital, who in this way, can command the services of a plant, which could not be duplicated for thousands of dollars. Address, Wiet-Goethe Company, Sacramento, California.

Drawings for Inventors.

If you want copies of the drawings of your patent, we can procure them at these prices:

12 copies, each sheet full size (8x13)	\$ 2.50
25 " " " " " "	3.50
50 " " " " " "	4.50
100 " " " " " "	7.00
500 " " " " " "	13.00
1000 " " " " " "	17.00

12 copies, each sheet reduced 1/2 (8 1/2 x 5 1/4)	\$1.25
25 " " " " " "	2.00
50 " " " " " "	3.00
100 " " " " " "	4.00
500 " " " " " "	7.50
1000 " " " " " "	9.00

These copies will be made by the photo-lithographic process, by the firm which formerly attended to the Patent Office work, and will be equally as good as the drawings accompanying your letters patent. Five hundred copies of your patent would cost you at least \$25. We can furnish 500 copies of the drawings, if contained on one sheet, for \$13 full size, or \$7.50, if reduced one-third, the same reduction as your letters patent drawings. Your valued orders solicited.

The Inventive Age Publishing Company,
WASHINGTON, D. C.

A NEW BOOK FOR INVENTORS.

Patents and How to Make

Money out of Them.

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trademarks and copyrights. It also tells accurately How and What to Invent How to sell Inventions, Place them on the Market, Interest Capital in them, and to successfully Promote a Stock Company. It also contains an index of forms worth double the price of the book, to any one interested.

ELEGANTLY CLOTH BOUND.

GOLD STAMPED. \$1.00 Postpaid.

Sent with one subscription to AGE for \$1.75.

Or will sell separately.

Address—The Inventive Age Pub. Co.,
918 F St., N. W. WASHINGTON, D. C.

Bee-Keepers

Should all subscribe to

THE AMERICAN BEE-KEEPER,

(Established 14 years.)

50 cents per year.)

The best magazine for beginners. We will send it **Six Months on Trial for 20 cents.** Sample copy free.

Address:

The American Bee-Keeper, Falconer, N.Y.

It is published by the

W. T. FALCONER, MFG. CO.

One of the oldest and largest makers of bee-keepers' supplies. Catalogue free.

Magic Rheumatic Cure!

It absolutely does cure. It is not a cheap remedy but it is a cheap cure. Mark the distinction! There are a thousand remedies to one cure. This is a CURE. It costs \$2.00 a bottle, and is worth \$20.00 to any sufferer. Sold only by our authorized agents or direct of us. Send for circular. Agents wanted.

MAGIC CURE CO.

R. 313-315 Dearborn St.

Chicago.



Attention Inventors!

LISTS OF MANUFACTURERS FURNISHED.

We have increased our facilities for furnishing lists of manufacturers, and now cover every line of industry.

Our charge for each list is one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad will be inserted three times.

THE INVENTIVE AGE PUBLISHING CO., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

Inventive Age

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 918 F Street, N. W.,
WASHINGTON, D. C.

The INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND A HALF.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

The INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 15 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,
WASHINGTON, D. C.

Entered at the Post-office as 2nd class matter.

WASHINGTON, NOVEMBER, 1905.

The Work of the Patent Office.

The conditions at the Patent Office show what we regard as a material improvement. We have always contended that Rule 63 should be observed, and that applications which have been put into condition for further action by the examiner, are entitled to, and should be given, precedence over new applications in the same class of invention; and while this rule has been observed in some divisions, it has been more honored in its breach than in its observance. Recently, however, it appears that orders have been issued to the examining divisions of the Patent Office, to reduce the whole number of cases awaiting action by disposing of the old cases, with the result that each week shows a diminution in the total amount of work.

The report of the condition of work at the close of business November 14, 1905 shows that there were 17,757 cases awaiting official action. The same report, dated October 24, 1905, shows the total number of applications awaiting action to be 18,336.

It has always seemed to us that when an application has been once reached for official action, that it is to the interest of the Patent Office, as well as to that of the applicant, that the case should be disposed of as rapidly as possible. In most cases, the applicant has had to wait several months for the first action, and he cannot understand why he is obliged to wait the same period for each successive action, and there is no reason why he should be required to do so. A prompt consideration of amended cases is likely to produce better results in the end, and it is a fact that in those divisions of the Patent Office in which amended cases have always been given the preference, that the work has been kept up and never allowed to fall behind. A consideration of the report of the condition of work shows that those divisions of the Patent Office which are behind in amended applications, are also in arrears in new applications.

We hope that the present plan of

having the amended applications taken up ahead of new applications will be continued, until all divisions of the Patent Office have brought such cases up within one month.

We are satisfied that inventors will appreciate this more than the reverse condition, which has caused new applications to be taken up in advance of amended applications.

The Published Decisions.

Since the February issue, the AGE has published each month the syllabus of the decisions of the Federal Courts relating to patent, trademark and copyright matters. Considerable space of each month's AGE is taken up for this purpose, which had previously been devoted to news matter; but as we are desirous of catering to the wants of inventors and manufacturers, it is felt that the best way to fulfill this mission is by acquainting its readers with information as to how the courts are deciding questions relating to patents, trademarks and copyrights. We should like to hear from our readers concerning the value they place on this matter, as items of news. It involves considerable expense to publish these decisions, but we will not object to this, provided it is regarded as a valuable feature by our readers.

In following the decisions each month, one cannot help being impressed with two facts: first, that quite a percentage of patents are held invalid by the courts; and second, that the comparatively recent doctrine of "Unfair Competition" is taking hold of the courts and is being made the most of by the lawyers. Perhaps the most remarkable case along this line was the suit by a coffee mill concern against a competitor alleging that the latter had taken its mills, made exact patterns therefrom, and put them on the market using the same numbers by which they had become known to the trade. The patent on the mill had expired, and of course no question of infringement was involved in the suit. The point made by the complainant was that the acts of the defendant constituted unlawful or unfair competition, in that the mills manufactured by the defendant were so closely patterned after those made by the complainant, that it was impossible for the public to distinguish between them, because of which the complainant's business suffered and the public was imposed upon. If the defendant had not attempted to copy after or simulate the appearance of the mills made by the complainant, no legal complaint could have been made. The gravamen of his offense was in building the coffee mills so as to imitate the mills of the complainant, and thus secure the benefit of their advertising and good will. There was, and could be, no objection made to his building coffee mills embodying the mechanical construction of the complainant's coffee mill, for the patent thereon had expired and left him free to do so. The moral of all this is that manufacturers of new specialties should put up their goods in a distinctive manner. If it is a compound, the boxes or bottles containing the same should be especially designed for the purpose, and the labels should be something out of the ordinary. In this way, not only are the goods made more attractive on the market, but the courts have something tangible presented to them, if a question of unfair competition comes up for determination.

Extensions of Patents.

A determined effort should be made to amend the laws relating to patents so as to provide for a reasonable extension of the terms thereof in individual cases, and at no considerable cost to the patentees. Not that we wish to introduce the bad features of the old extension system, under which many abuses sprung into existence, but we think that there are many cases in which an extension of the terms of the patents should be allowed, and this without being obliged to go to Congress for a special act, as at present. For instance, where a patentee has been obliged, by reason of the infringement of his patent, to spend a great deal of money, and devote a number of the years allowed under the term of the patent, to preserve his rights, it seems reasonable that the government should step in and give him an extension which will enable him to recover what he has lost through no fault of his own. It has happened more than once that a patentee has lost years of the term of his patent in fighting infringers, and at last when the patent had been finally adjudicated by the courts, and declared valid, he found himself able to enjoy only a few remaining months of the original term of the patent. This is unjust. Of course, the law should be prepared carefully so as to fit only the meritorious cases; for a general system of extension of patents should not be allowed. If the law were limited to cases where the patentee has had his time taken up in fighting infringements, and because thereof failed to get any adequate benefit from his patent, it would serve a long-felt want and deal justly with a class of persons who do not always receive their rewards.

Examinations as to Patentability.

No application for patent should be presented to the United States Patent Office until a search has been made of the records of the Patent Office to determine whether or not the invention is patentable, and if so, the extent of novelty of the invention. No matter how certain the applicant may feel that his invention is novel, he should never rely on his own opinion, for sometimes it may turn out that he is misinformed on the subject. We have known of men who have spent a lifetime in certain pursuits, who thought that when they presented their applications for patents that the record was clear, and they were much astonished when they found that years ago, the same ideas had occurred to others and been patented. There is many a good idea locked up in the expired and expiring patents issued by the United States Patent Office, which are only brought to light by someone conceiving the same things again. One illustration of this fact is the old scheme of opening an envelope by means of a string. This was first patented in 1858, yet there is hardly a week goes by in which a search is not made of the Patent Office to determine its patentability.

There is no reason why a search should not be made in every instance, for the Patent Office furnishes good facilities for making such investigations. While it is true that the scope of the investigation made by an attorney is not, and cannot be, as extensive as that conducted by an examiner of the Patent Office, for he can examine and cite English patents, printed publications, catalogues, etc., which are not open to public inspection, and at the same time, the search of the United States patents is quite likely

to develop anticipating patents if any are in existence. It is only in a comparatively few cases in which the Patent Office finds anticipations among foreign patents. The Committee on Classification, appointed several years ago, has been and is doing excellent work in reclassifying the patents, with the result that not only can the preliminary examinations be made with a greater degree of accuracy, but the work of the Patent Office has become more systematized.

The preliminary search is valuable for the two-fold purpose of finding out whether or not the invention is patentable, and developing the state of the art so as to guide the applicant or the attorney in drawing the claims in the application for patent. Where a search has not been made, or where it has been indifferently conducted, the applicant or the attorney is pretty apt to present claims broader than the invention, resulting in the rejection of the claims and the necessity for future amendment. In every instance, the state of the art should be developed by a search of the proper class in the United States Patent Office, so that the differences between the invention to be embodied in the application and what has already been patented, may be clearly presented and defined in carefully drawn claims.

Although no search of the records of the Patent Office can determine with absolute certainty that the invention is patentable, it is time well spent, and no application should be presented until the records of the Patent Office have been closely scrutinized, for it will save both time and money in the end.

More Light on the English Patent Law.

From our point of view, the working of the new English Patent Law which went into effect January 1, 1905, has not been a glittering success. Not only has the practice of the English Patent Office been made more complex, necessitating additional charges for procuring English patents, but there has been no corresponding gain to the patentee. No one has any greater respect for an English patent, so far as its validity is concerned, than before, and it certainly has not increased in value. If the search were a complete one, along the lines of the searches instituted by the United States and German Patent Offices, one might feel that the extra expense of procuring an English patent was money well invested; but as the search made by the English Patent Office under the new law only comprehends English patents for a period of fifty years back, and does not include foreign patents, or printed publications of any kind, it follows that any one can still pursue the old practice of patenting in England, inventions well known in the United States and actually patented in this country. It is hoped, however, that a familiarity with and the practice of the search system of granting patents, will induce an extension thereof so as to include a complete investigation. In this connection, it may be stated that the United States was the first country in the world to adopt a rigid examination system in the issuance of patents. Since 1836, applications for patents filed in the United States Patent Office have been declared allowable only after a search of the records of the Patent Office. This search, as it is conducted today, is very rigid. It comprehends not only an examination among the U. S. patents, which are divided and classified into many hundreds of classes, but also among foreign patents, books, catalogues, papers, etc. The German Patent Office is, in some respects, more rigid in its practice than is the United States Patent Office; though Germany only adopted its system during the 70's.

SCIENTIFIC

PROGRESS.

Time-Recording Camera.

To ascertain the exact speed at which automobiles are traveling is often a question of importance to the public, who suffer from reckless driving. It is of no less value to have the testimony of an immutable witness in the police court, where the chauffeur and the policeman who has arrested him, are always at odds as to the rate of speed of the machine. It is believed that this has been accomplished by the invention of a time-recording camera.

If the authorities wish to know the rapidity at which a motor car is traveling, two of these cameras can be placed at each end of a "trap," the distance between the points where the cameras are located having been accurately measured. The plan is for the cameras to take actual photographs of an automobile, including the occupants, as it passes the selected spots, recording the time of taking to the fraction of a second. This gives the speed and furnishes, as well, a means of identifying a car and its occupants. If the watch be synchronized, the decision must be accepted by all parties as accurate. When a chauffeur is arrested for exceeding the speed limit, he is to be furnished with the photographs of the car entering and leaving the "trap," and the time records, and be given an opportunity before appearing in court to measure the length of the trap and calculate from this data the time actually taken in traversing the distance, and from this the rate of speed.

It is possible, with the help of this camera, to take a photograph of any rapidly moving object passing any given point, the shutter speeds giving a range of exposures from one-twenty-fifth of a second to one one-thousandth of a second. At the same time and with the same movement, a photograph is taken of a watch, thus giving the precise time. A special case is provided for the watch, and in an opening above the latter, a card is inserted giving the date, which can be signed by the officer responsible for the time test. Underneath the dial is a numbering apparatus, and each watch case bears a registered number before it is sold. The case is so made that after the official has placed the watch in the case, it can be sealed (not locked) up, and it is impossible for a person in charge of the same to tamper with the watch without breaking the seal. The camera thus makes a record that can be produced in court, and if carefully stored can be referred to and reproduced months afterwards.

This employment of the camera recalls the original purpose for which the kodak was designed. Those who remember the introduction of this instrument will recollect that it first made its appearance under the name of the "detective camera." In those days it was concealed in one barrel of an opera glass, or in a tall hat, a brown paper parcel, or even behind a waistcoat with the lens pointing

through a buttonhole. It was thought that it would be largely used by the police for obtaining incriminating evidence: but after awhile it came to be recognized that successful photography implies the existence of conditions of light and space in which no criminal in his senses would dream of operating. The misnomer "detective camera" was therefore gradually dropped. The instrument is still, however, occasionally employed by the police—notably in a recent instance in England, when an officer in plain clothes was sent with a kodak among a Sunday crowd who were betting on the Humber. In this case the instrument was not disguised in any way, but was simply used as by a pleasant amateur wishing to secure studies in expression: then the police made a raid, numbers were captured, and the seemingly innocent snap shots were brought up in evidence against them.

Cotton from Wood.

In view of the high price of cotton, anything in the nature of an alternative supply must be regarded with interest. Goods have been introduced to the market the warp of which is composed of cotton and the wool of a thread made from wood pulp. At the outset of manufacture, sheets of wood pulp paper were cut into shreds and twisted into thread by machines made for the purpose. Now this process has been abandoned, and the pulp is passed directly over grooved metal sheets, forming thin ribbons, which pass in turn over a machine that twists them into a regular thread of any desired length.

These wood threads are by no means as strong as those of cotton, or even of jute, but it is thought that improvements can be made which will increase their resistance. As they are used, so far, only in mixed goods, great strength is not of primary importance.

Dishcloths are made of this thread in connection with hemp, and the mixture is washed, dyed, and printed. While wet, the wood thread softens, but recovers its resistance in drying. It is believed that the new thread can be used to advantage in the manufacture of passementerie, and that it may replace jute and cotton in the composition of many articles.

Experiments in another line have resulted in the production of an artificial cotton from pine wood. The wood is cut into sticks one-sixteenth of an inch in diameter. These are subjected to the action of steam until the wood fibre has become thoroughly disintegrated. It is then treated with sodium sulphate for 40 hours: next it is washed and crushed, and the fibres are bleached by chloride of lime. The resultant matter, which is practically pure cellulose, is heated under pressure with a mixture of nitric and hydrochloric acids and chloride of zinc, and to the paste thus formed, a small proportion of gelatine and castor oil is added. A spinning machine forms the cellulose into fine threads, which are washed in soda and dried, and afterwards woven into what is said to be a very good fabric. When the process is placed upon a commercial basis, the results will be watched with interest.

Bricks of Glass.

It seems self-contradictory to think of making building bricks of so fragile a substance as glass: yet since we have wheels and boats made of paper, we should be ready to accept further anomalies. Bricks not only for building but for paving purposes have been made of glass, and have given complete satisfaction. Bricks or tiles of pure crystal glass, based on scientific principles for the diffusion of natural light by radiation are common: and devitrified bricks for paving have been on the market in France for years, and factories for their manufacture have been established in all the principal countries of Europe. Old glass obtained from broken bottles, window panes, etc. is used in manufacturing the bricks when uniformity of texture and color is not necessary. For tiles and bricks that are to be used for decorative purposes, glass is first made from sand of suitable quality, carbonate of lime, sulphate of soda and potash, the proportion being about 5 of sand, 4 of lime and 1 of alkali. After being cooled slightly, the glass is granulated by being thrown into cold water. The granules are put into refractory molds and again heated to a temperature below complete fusion until they become plastic. The molds are then withdrawn from the furnace, placed under a hydraulic press, and subjected to a pressure necessary to form the plastic material into the desired shapes. After being trimmed, the molds are passed through the cooling process in ovens especially constructed for the purpose.

This glass, which has been devitrified by the process above described, is manufactured in a variety of forms for paving streets, sidewalks, gutters, and for the uses for which porcelain and other tiles are employed, as for walls and floors of bathrooms, operating rooms in hospitals, waiting rooms and staircases of railroad stations, etc. The glass not being readily attacked by chemical products, it can be used in factories and laboratories where acids and other chemicals are employed, and being impermeable to moisture, can be used in cellars and other places where humidity abounds. The bricks are also molded in ornamental forms, and can be made according to the drawings of architects and interior designers for decorative purposes in drawing rooms, offices, etc.

In paving streets with these bricks, the foundation is composed of a layer of concrete, six inches thick, made in the proportion of 550 pounds of cement, 18 cubic feet of sand, and 35 cubic feet of small stones, and a layer of Portland cement nearly half an inch thick. The bricks used in one particular case were 8 inches long, 4 wide and nearly two inches thick. They were laid directly on the foundation in rows perpendicular to the border, with a space between them of a fraction of an inch, the space being kept by a wooden template of that thickness. Four days after paving, the streets were open to traffic, and they are reported to have endured the strain very well. The advantages attributed to the glass brick by the

manufacturers are greater resistance than stone—the glass being able to withstand a pressure of 28,000 pounds to the square inch, while granite can stand a pressure of only 9,000 pounds—the fact that it is a poor conductor of cold, and ice will not form upon it readily: dirt will not accumulate upon it as easily as upon stone, and it will not retain microbes: and lastly, it is more durable than stone and just as cheap.

Glass building bricks are made of blown glass, and owing to their hollow, closed form, are excellent temperature and noise insulators, and do not sweat or freeze. The edges are made with flanges which fit into countersunk recesses, so that the bricks may be laid with very little cement, into air tight and very firm, although thin walls, and have a special fitness for many purposes. One advantage is their fire-resisting quality: and they are also adapted for any building where light, cleanliness and neatness of appearance are desired.

The devitrification of glass, whereby its transparency and brittleness are replaced by an opaque appearance and a hardness resembling granite, is no new discovery. The novelty lies in the practical process whereby a marketable value has been given to the product. The system described is due to a Frenchman, and so alters the molecular structure of glass as to enable a new product to be offered to builders. In appearance it resembles granite with a variety of tones of color, these depending upon the nature of the metallic oxides contained in the material used in its composition. As the bricks are non-porous and therefore do not absorb moisture, they form the most hygienic material known for paving streets, as well as the floors and walls of hospitals, dairies, breweries, ice factories, etc. A comparison made between these bricks and Carrara marble shows that the former are 15 times harder than the latter. It might be thought that as the bricks are made of glass they would be too slippery for pavements, but their surface is corrugated, thus obviating this objection.

In this connection, it is interesting to note a recent improvement in the process of making ordinary glass. The materials of which glass are composed are, it should be explained, placed in what is technically called a pot or crucible, and this is put into a furnace. Up to the present these pots have been so fashioned that workmen have had to wait 18 hours and longer before the metal could be drawn for practical purposes. In some cases as much as 48 hours have elapsed, and it has been a common occurrence for workmen arriving in the early hours of the morning with the intention of working the metal melting in the pots over night, to find that they have to wait several hours before they could commence. All this, of course, meant lost money.

The new invention prevents this loss of time, and like all clever devices, it is simple. By an ingenious arrangement, the pot permits an uninterrupted flow of glass, and thus the work can be kept going day and night. It also insures a fine glass or crystal, because of the facility in avoiding the entry of air while drawing off the glass. It is said that the invention will effect marked economy in fuel, as without extra coal, the manufacturer can produce three times as much glass with this crucible as with the older method.

THE INVENTIVE AGE contains sound advice to inventors and patentees. For lack of such advice many have lost money. Subscription, one dollar a year.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy; twenty copies \$1.50.—Please give correct data in ordering.—Address,

THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

Issued October 3, 1905.

MECHANICAL PATENTS.

Acetylene generators. Stirrer for J. W. Weeks
Acid and making same. Diamidodiphenylamine
sulfonic..... H. Geldermann
Adding machine..... R. E. Wageley et al
Air brake mechanism..... A. L. Goodknight
Aluminum acetate. Making insoluble.....
..... R. Reiss et al

Ammunition carrier..... E. T. Gibson
Amusement apparatus..... J. H. & H. S. Porter
Angle determining implement H. H. Winship
Automobile folding hood..... H. Raphael et al
Automobile steering gear..... W. Y. Gambee
Axles. Truss brace for wagon..... W. C. Mann
Bain marie..... R. Metivie
Bearing. Antifriction. 2 pats..... T. A. Blakely
Bearing. Antifriction..... J. Bevington
Bees smoker..... F. Danzenbaker
Beer sterilizing apparatus..... O. E. Michaud
Bed attachment..... A. E. Saxton et al
Bed brace..... H. L. Booth
Bed invalid..... M. D. Stow
Bed warmer and cover support.....
..... T. B. Woodward

Bell. Electric..... W. J. Murdock
Bell. Polarized electric..... S. C. Shaffner
Belt holder..... H. Parkes
Bill holder..... R. Ferris
Bituminous composition..... A. E. Schutte
Boat. Bicycle..... E. C. Fowler
Boat raising and lowering apparatus..... Ship's
..... J. Burt
Boiler..... J. H. Lambrix
Bookbinding..... C. Chivers
Boot and shoe tree..... M. O'Carroll
Booth. Warming..... C. M. Bowman
Boring apparatus. Deep..... E. Friehe
Bottle closing device..... A. C. Witzel
Bottle. Non refillable..... H. Brewster
Bottle. Non refillable..... J. J. Collins
Bottle. Non refillable..... O. Emmertal
Bottle rack..... A. F. Mack
Bottle stopper..... J. J. Mulvaney
Bottle stopper..... H. L. Roosevelt
Bottle stopper..... E. E. Rothchild
Bottle stopper lock..... E. R. Cough
Bottle washer..... C. Pabst
Bottles, &c. Conveyer for..... J. F. Gegenheimer
Bowling alley. Table..... A. E. Merckling
Brake beam fulcrum..... J. F. O'Connor
Brake shoe. Locomotive..... H. H. Uquhart
Brick or tile cutting machine.....
..... reissue. W. R. Cunningham

Brick press..... E. von der Osten
Bristle tufts. Apparatus for segregating.....
..... H. Nielson
Broom attachment..... C. M. Thompson
Brush stapling machine..... W. G. Liebig
Brushes. Combined ferrule and bridle for
wail..... A. Lockey
Bucket. Dumping..... S. M. Bishop et al
Buckle..... J. S. Anderson
Buffing or polishing roll..... W. Gordon
Building block..... A. P. Coolidge
Building block..... H. S. Palmer
Building block. Hollow..... H. S. Palmer
Building block molding machine..... J. A. Noble
Burglar alarm..... D. Reym
Burial case..... P. D. Skahan
Button and loop clasp..... C. Wytzen
Calculating machine..... S. R. Stallard
Calendar..... F. Schwerdtfeger

Camera lens fronts. Clamping device for.....
..... J. Goddard
Camp table..... R. R. Raymond
Can opener..... J. J. Graf
Car..... E. S. Bucknam
Car bolster. Railway..... H. H. Vaughan
Car construction. Railway..... E. P. Monroe
Car coupling..... M. I. Welch
Car door..... W. D. Thompson
Car fender..... G. W. Steenrod
Car grab handle. Open..... J. A. Brill
Car. Mining..... A. C. Latimer
Car. Semiconvertible..... J. A. Brill et al
Cars. Device for holding checks upon mine.....
..... J. M. Wyser
Carbureter..... W. A. Hatcher
Carbureter and vaporizer for explosion en-
gines..... A. Westmacott
Carbureter for hydrocarbon engines.....
..... C. W. Parsons

Cards and the like. Pictorial post..... E. L. White
Cards for jacquard machines. Machinery for
preparing..... J. Capper
Casket lid fastener. Sheet metal..... J. Maxwell
Casket. Sheet metal..... J. Maxwell
Centering..... R. F. Easton
Centrifugal machine..... C. Alderregia
Chair back..... B. Norward
Checkrein holder..... S. H. Altice
Cheese cutter..... D. T. Bryan et al
Chuck. Drill..... G. A. Orr
Chuck. Lathe..... I. B. Gilbert
Chuck. Multiple spindle drill N. W. Crandall
Cigar clipping and lighting device.....
..... W. J. Moshier

Clutch. Friction..... G. H. Ellis et al
Clutch. Friction..... F. S. Williams
Clutch. Self locking..... D. A. Messner
Coal augers. Machine for operating.....
..... 2 pats..... J. H. Huhn
Coal carrying vessel or bag. Manual.....
..... N. R. Marshman
Coat. Hunting..... J. E. Boland
Cock and swing joint. Combination stop.....
..... D. F. Andrews
Coin tray..... J. W. Meaker
Collar. Lady's stock..... D. Kisch
Comb..... E. D. Hamilton

Communicating between stationary points and
moving objects. Method of and apparatus
for..... I. Kitsee
Compressor..... A. Steinbart

Compressor. Pneumatic..... L. H. Rogers
Computing machine..... H. Marshall et al
Concrete and similar materials. Forming
structures of..... E. L. Ransome
Concrete building block..... C. W. Carter
Controller regulator..... C. P. Ebersole
Conveyer..... M. C. Schwab
Conveyer mechanism. Belt..... W. E. Bee
Cooking apparatus. Electric..... G. Teuber
Coop. Knockdown..... J. H. Rhoads
Corkscrew..... P. L. Robertson
Corner plaster block..... M. G. F. Buckley
Corset..... C. A. Trenholm
Cotton picker..... 2 pats..... H. P. Childress
Cotton picking machine.....
..... 2 pats..... H. P. Childress

Counting machine..... J. D. Bishop
Coupling device..... J. W. Hurst
Crate. Knockdown..... H. C. Deck et al
Crate. Shipping..... B. K. Boyd
Crayon holder..... C. I. Pigford
Cream separator. Centrifugal.....
..... 2 pats..... J. H. Fleming
Creamer driving mechanism. Centrifugal.....
..... P. L. Kimball

Culvert..... W. J. Walsh
Curvert. Metallic..... J. E. Sperry
Currycomb..... A. S. Burnell et al
Curtain pole..... P. Hamill
Curtain rod and supporting bracket. Com-
bined..... G. C. Degner
Cuspidor..... W. A. Atkeson
Cut off. Automatic..... F. Hoelder et al
Damp cord, weather strip and door cushion.....
..... D. Schuyler

Dental engine air blast attachment..... J. W. Buchanan
Dental matrix..... F. E. Andersen
Derrick. Portable..... D. Otto
Desk and seat. School..... E. Smeiling
Disconnecting mechanism..... E. G. Howard
Display stand..... A. N. Bergeron
Display tray. Jeweler's..... H. W. Anderson
Distributor..... J. H. Fulton
Door controlling apparatus..... J. W. Tripp
Door lock..... S. Wisniewski
Door, window or the like..... D. Schuyler
Double walled furnace..... L. G. Leffer
Dough mixing machine..... E. E. Ward
Draft equalizer..... J. B. Hollister
Dredger bucket..... T. O'Leary
Drilling apparatus..... J. F. Willard
Drilling apparatus..... S. W. Baldwin
Drilling machine..... A. T. Anderson
Dust arrester for pneumatic drills and reamers.....
..... L. M. Parrett

Dye. Yellow red azo..... W. Herxberg
Egg carrier..... D. B. Replogle
Egg preserving compound..... E. A. Makepeace
Electric furnace..... F. Kjellin
Electric transmission receiving device.....
..... I. Kitsee
Electric wire tower..... L. W. Noyes
Electric wire weather trap..... W. H. Roney
Electrical circuit protective apparatus.....
..... C. A. Rolfe

Electrical circuit protector..... C. A. Rolfe
Electrical distribution system..... R. N. Chamberlain
Electrical instruments. Protective apparatus
for..... F. R. McBerty
Electrical means for detecting and announcing
contact between two conducting bodies.....
..... M. Barr
Electrical protective apparatus..... 3 pats..... C. A. Rolfe
Electrical protective device 2 pats..... C. A. Rolfe
Embossing metallic capsules and similar arti-
cles. Apparatus for..... F. A. G. Robin
End gate and shovel board. Combined.....
..... C. D. Mattix

Engine speed regulator. Explosion..... D. F. Williams
Engines. Packing disk for rotary..... D. Morel
Envelop machine..... H. E. Sporel
Envelop marker..... E. Neron
Erasing device. Rotary..... H. Reese
Excavating machine..... J. Helm
Eyeglasses..... G. A. Bader
Faucet. Filtering..... J. Koehler
Fence machine. Wire..... T. M. Conner
Fence post..... A. Pevoto
Fence post mold..... J. F. Haffey
Fencing tie. Wire..... F. W. Reed
Fertilizer distributor feed mechanism.....
..... H. W. Eisenhart

Fiber breaking machine..... R. C. Hall
Fiber picking and separating machine.....
..... A. M. Sheakley
Fife..... J. Jenks
Fifth wheel..... W. Miller
File..... A. E. Landon et al
File. Paper and similar..... E. M. Goldsmith
Filter. Pressure..... S. G. Derham
Fire escape ladder..... M. J. McArthur
Fireproof sheets. Apparatus for the manu-
facture of fibrous..... J. B. Watson
Firing mechanism..... J. F. Meigs et al
Floor dressing machine..... H. A. Verges et al
Floor dressing machine..... C. B. Wattles
Flooring. Manufacture and arrangement of
parquet..... H. Romanoff
Flour sack holder and sifter. Combined.....
..... M. S. Cross
Flue cutter..... C. J. Johnson
Fluid pressure adjusting mechanism.....
..... C. M. Manly

Flushing apparatus. Closet..... P. F. King
Flushing tank. Antifreezing..... G. Coenen
Folding machine..... G. J. Dormandy
Food..... M. V. Romerogarcia
Forge..... N. W. Rasnick
Furnaces. Preparing dust ores for blast.....
..... H. E. Esch
Furnaces. Preparing dust ores for blast.....
..... J. C. Fellner
Furnaces. Preparing fine particles of oxid of
iron for use in..... U. Wedge
Furniture..... W. Kirkpatrick
Furniture. Combination..... W. J. Wetherhead

Fuse device..... 2 pats..... C. A. Rolfe
Galvanic battery. Reversible..... C. B. Askew
Game apparatus..... A. H. Ragsdale
Game counter..... S. B. Matson
Gas burner for furnaces..... J. C. Beckfield
Gas engine..... A. Steinbart
Gas generator. Acetylene..... E. A. Chamberlin
Gas or gasoline engine..... E. H. Korsmeyer
Gear. Change speed..... C. de Rutty
Gear. Variable speed..... H. M. Manly
Gearing..... C. H. Ocumpanly
Glass into molds. Apparatus for feeding.....
..... J. Haley

Glove..... F. H. Busby
Grading machine. Material..... G. Hoepner
Grain separating machine..... G. Stuart et al
Grain separator..... A. W. Erickson
Gramophones, phonographs, and like instru-
ments. Sound regulator for..... A. Conze
Grate bar..... D. S. Richardson
Grinder. Lawn mower..... L. F. Brasch
Guano distributor..... F. O. Fokes
Gun lock mechanism..... R. C. Wolisberger
Hair drying apparatus. Hygienic.....
..... W. E. Roberts

Hair washer..... N. Leidgen
Hame..... E. E. Bull
Hame..... G. B. Hoch
Hanger for supporting centers..... A. G. Pierce
Harness..... A. D. Carpenter
Harness hook..... L. W. Ashley
Harvester..... A. Castelin
Harvester. Corn..... H. B. Wyckoff
Hat fastener..... J. Stawartz
Hat pin..... R. Thorner
Hat pressing machine..... A. Gordon
Hay, corn, clover, and similar crops. Machine
for turning..... W. E. Martin
Hay rake. Horse..... C. E. Lindberg
Heating or cooling apparatus. Surface.....
..... A. W. Brewtnall

Hide molding machine..... H. W. Southworth
High potential switch..... E. M. Hewlett et al
Hinge..... H. J. Valentine
Hobby horse..... J. A. McSweeney et al
Hoe..... J. O. Newcomb
Hoisting mechanism safety device..... W. Cooper
Hoop..... A. M. Clark
Hopple and tail holder. Combined.....
..... J. G. Connell

Horse guard..... W. T. Lewis
Horsehoe calk. Removable..... E. M. Roberts
Horsehoe. Nailless..... J. D. Gordan et al
Horsehoe. Rubber..... W. Downs
Hosiery. Seamless..... R. C. Blood
Hot air circulator..... M. C. Green
Hydraulic elevator for dredging purposes.....
..... B. Flood

Hydrocarbon burner..... C. R. Herrington
Hygrometer attachment..... J. A. Gerrer
Indicator..... E. S. Mitchell
Induction coil for igniting explosion motors.....
..... J. Carpenter
Ingot stripper..... J. I. Blount
Ingot stripper..... D. B. Cheever
Insect catcher..... E. J. Krenek
Insect destroyer..... C. L. Ingerich et al
Insulator. Self locking..... C. L. Mathias
Internal combustion engine..... C. S. Drummond
Jar closure..... S. Adam
Knitting machines. Shifting mechanism for
the dialcams of..... G. W. Ruth
Knockdown box..... J. N. Sisley
Knot tying implement..... C. F. Holly
Ladder scaffold bracket..... B. Biehler
Lamp..... G. Keller
Lamp. Incandescent..... F. M. Brooks
Lamp. Turn down incandescent..... S. E. Doane
Lamps. Liquid heating attachment for.....
..... C. Plummer

Latch..... J. F. Weathers et al
Lathe attachment. Wood turning..... R. B. Codling
Leers or annealing furnaces. Ware feeding
apparatus for..... J. Haley
Level..... C. F. Grosser
Lever. Adjusting..... H. J. Case
Life saving apparatus..... 2 pats..... P. Mahoney
Lighting fixture body..... F. W. Wakefield
Lime. Treating..... C. Ellis
Liquid holding and applying device..... S. Kahn
Lubricating apparatus. Crank shaft.....
..... A. T. Marshall

Mail box carrier..... D. Paterson
Mantle and shade holder. Combination.....
..... A. Rector
Match box..... P. Hilbert
Match box..... J. M. Graham
Match safe..... J. E. Neahr
Matrix assembling mechanism..... B. F. Bellows
Matrix distributing mechanism..... B. F. Bellows
Mattress, &c. Pneumatic..... A. A. Young et al
Measurer and fitter. Collar..... C. E. G. Wagner
Measuring instrument. Electrical.....
..... E. F. Northrop

Meat smoking apparatus..... A. M. Miller
Mechanical motion..... C. A. Dahl
Mechanical movement..... H. E. Kulmer
Metallic plate. Apparatus for forming thin.....
..... D. M. Somers
Metals. Purifying..... H. M. Chance
Molding machine. Sand..... E. & T. Mistelski
Motion to slides. Device for imparting re-
ciprocatory..... J. A. Frossard
Motor controller..... S. S. Neu
Mower attachment. Lawn..... J. West
Mowing machine attachment..... O. Z. Baldwin
Music cabinet..... J. Herzog
Nail..... M. Hermelink
Necking machine..... J. J. Rigby
Nitrating aromatic amines..... W. Herzberg et al
Nut lock..... J. F. Laufer
Nut removing device. Axle..... J. J. McDonald et al

Nut. Toggle..... F. D. Ogden
Oil receptacle..... N. Platt
Ordnance. Breech loading..... S. N. McClean
Ores. Reducing..... H. Arden
Organ. Viol..... E. Ringer
Overalls..... H. Edelman
Overshoe holder..... J. Mardis
Packing. Rod..... E. J. Norton

Paint or oil can..... J. B. Hall
Painting or coating machine..... J. H. Neville
Paper box folding and gluing machine.....
..... E. Fischer
Paper slitting device..... D. L. McCorkindale
Paper tube cutting machine..... H. J. Hurd
Passenger elevator and conveyer.....
..... B. R. Adkins et al

Pegging machine..... J. F. Davey
Pen attachment..... E. F. & E. E. Hicks
Pen guide..... H. G. Becker
Pencil holder, &c. Combination..... E. P. Van Alstyne, Jr
Perforating machine. Tip..... T. F. Hart
Permutation lock..... E. E. Higginbotham
Phonograph record and making the same.....
..... T. A. Edison

Phonographic recorder..... P. Weber
Piano..... J. A. Maiville
Pick..... A. Walker et al
Pin hook..... L. E. Russell
Pipe cutting machine..... H. Schmidt
Pipe joint. Flexible..... F. W. Steinke
Pipe joints. Forming..... M. Kronauer
Pipe wrench..... D. H. Ireland
Pistol..... H. Bennett
Pistol. Combined..... J. L. Brassington
Planer..... S. McMillen
Plant protector..... C. Landon
Planter and fertilizer distributor. Seed.....
..... A. J. Herrick

Planter. Cotton or seed..... R. S. Bonner
Plasters, &c. Making..... W. Loebell
Plate. Making thin..... D. M. Somers
Plow..... G. Gallimore
Plow..... E. B. James
Plow..... S. V. Weeks
Plow. Traction gang..... A. Bishman
Plows. Combined harrow and draft arrange-
ment for..... C. A. Bollinger
Plumbago. Manufacture of stratified blocks
of..... C. W. Speirs

Pneumatic despatch apparatus..... C. F. Stoddard
Pneumatic drill. Portable..... H. S. Potter
Pocket protector..... J. Stauffer
Power transmission mechanism..... C. & M. Forthun
Press and bain marie. Combined..... R. Metivie
Press box..... L. R. Camp
Press roll..... K. B. Fletcher
Printing machine. Wad..... H. J. Hurd
Printing plates. Making..... J. Engelhardt
Printing press..... M. Anthony
Printing press and the like delivery mech-
anism..... W. Spalckhauser
Printing press. Color..... W. C. Kammerer
Printing press inking roller..... M. Anthony
Propeller. Adjustable..... F. G. Hobart
Pulp board..... C. Shepherd
Pulverizer and clod crusher. Land.....
..... R. J. Buswell

Pump..... J. A. Groshon
Pump rod extractor..... S. S. Button
Punching machine. Metal..... C. A. Johnson
Puzzle..... J. L. Dow
Radiator heat shield..... E. M. Fancher
Rail chair..... E. D. Cramer et al
Railway tie..... H. D. Ford
Railway tie. Compound..... W. G. MacLaughlin
Railway rail stay..... S. R. Bryan
Railway signaling system..... K. Scholz
Railway signaling system..... H. B. Taylor
Railway tie..... H. J. Corell
Railway tie..... H. S. Delamere
Railway tie. Metallic..... S. Burney
Register operating mechanism..... G. T. Evans
Rheostat. Thermometric..... W. H. Bristol
Rivet holder. Magnetic..... H. B. Douglas
Rolling mechanism..... D. M. Somers
Roost. Poultry..... V. E. Gustus
Rope making machine..... L. S. Turner
Rossing machine..... A. H. Larochele
Rotary engine..... L. Creux
Rotary engine..... J. C. Fredericksen
Rotary hydrocarbon engine..... W. E. Schneider
Rubber. Devulcanizing..... A. P. Eves
Running gear..... J. H. Kinsman
Safe. Subterranean fire and burglar proof.....
..... J. McFarland

Safety pin hook and eye..... E. A. Campbell
Sash fastener..... G. A. Orr
Sash fastener..... J. E. Gibbs
Saw jointer..... M. Kapp
Saw sharpening and gumming machine.....
..... J. Moore, Jr
Saw sharpening machine..... B. L. Humphrey
Saw swage..... C. J. Anderson
Sawmill..... R. L. Neubert
Scaffold. Adjustable..... M. King
Scale. Computing..... J. R. Johnson
Scale. Price..... G. M. Ludlow
Scales. Weight indicator for weighing.....
..... D. F. Curtin

Sealing machine. Envelop..... G. N. French
Sealing press. Envelop..... C. J. Quay
Securing device..... G. D. Watson
Seed cleaner. Cotton..... D. C. Lyle
Seeders. Truck attachment for..... S. K. Dennis
Semaphore arm..... G. W. Blank et al
Semaphore. Electric..... C. E. Frederickson
Service box..... P. E. Snow
Sewing machine stopping device..... J. L. E. Nelson

Sewing machine take up device..... J. T. Hogan
Shade cloth stretcher..... L. B. Girard
Shaft coupling..... G. E. Frarquist
Shaft hanger..... R. A. Palmer
Shaking screen..... J. A. Traylor
Sheathing..... F. J. Pioch
Shoe guard..... L. J. & S. A. Friedheim
Shoes and leggings. Snow proof coupling for.....
..... E. L. Parkman

Skein clip..... L. Destree
Skirt vent adjuster..... J. Boyd
Slab. Decorative..... F. Huerbein
Sleigh truck attachment..... J. M. Closson
Smoke consuming furnace..... C. E. Slye
Smoking pipe..... W. J. Felton
Smoothing machine..... W. S. Smith
Snow plow..... P. E. Kenney

Soap and making same H. Becker
Soldering. Composition of matter for H. P. Larsen
Soldering iron W. C. Howard et al
Sound augmenting receiver H. G. Pape
Splice bar G. Ericson
Spool stamping die J. H. Shearn
Spool support and thread guide Combination
Square. Adjustable R. M. Dixon
Stacker. Hay G. L. Curtis
Stacker. Hay M. Kane et al
Staircases, &c. Tread for T. Beevers
Stanchion. Cattle P. B. & J. T. Trewer
Station indicator H. R. Nelson
Steam boiler C. G. Curtis
Steam boiler C. Bioly
Steering moving objects. Automatically I. Kitsee
Stereotype and other printing blocks. Means for holding and registering R. J. Kittredge
Stirrup G. A. E. Martin
Stocking supporter C. W. Latimer
Stoker J. E. Whittlesey
Storage battery W. Gardiner
Store service apparatus 2 pats.
Stove attachment. Gas S. Leibenglick
Structures impervious against various agents. Rendering exposed M. Toch
Stump puller C. A. Whipple
Suit. Combination or union A. G. Velasko
Switch and signal stand. Combined C. A. Dunham et al
Switch member. Connection F. R. McBERTY
Syringe. Fountain C. J. Kintner
Table support C. T. Kincaid
Telegraph and telephone line and the like J. C. Barclay
Telegraph. Printing J. C. Barclay
Telegraph receiver. Wireless G. T. Swenson
Telegraphic transmitting tape I. Kitsee
Telegraphy. Quadruplex S. D. Field
Telegraphy. Space I. Kitsee
Telegraphy. Wireless I. Kitsee
Telephone exchanges. Main distributor for G. Deisenhofer
Telephone mouthpiece. Antiseptic W. B. Curtis
Telephone receiver H. G. Pape
Telephone receiver W. J. Murdock
Telephone receiver and aural message instrument. Combined H. G. Pape
Telephone switchboard key F. H. Loveridge
Telephone transmitter P. J. Spies et al
Telephone transmitter J. Prince
Telephonic transmission I. Kitsee
Telephony I. Kitsee
Terpenes and resinous substances. Producing G. P. Craighill et al
Thermal cut-out device 2 pats. C. A. Rolfe
Thill coupling J. Cummings
Threshing machine straw stacker O. C. Zimmerman
Tile floor, wall, &c I. Kitsee
Tile. Stria finished W. P. Meeker
Tin plate. Making D. M. Somers
Tire armor J. C. Moore
Tire. Cushioned E. C. Bailey
Tire for vehicle wheels. Elastic H. Gilardoul et al
Tire guard. Pneumatic T. H. Lindley
Tire. Pneumatic J. A. Murphy et al
Tires. Antislippin device for W. J. Smith
Tobacco pipe I. W. Kelly
Tool. Combination D. M. Haney
Tool. Finishing F. A. Black
Toothpick holder E. Bergmann
Torch light C. M. Kautnik
Toy F. Howard
Toy ball J. F. E. Feltner
Track and switch. Overhead D. B. Cherry et al
Train safety device M. Nikolic
Trolley pole A. L. Prentiss
Truck. Car W. F. Kiesel, Jr
Truck. Couch I. E. Smith
Truck. Freight F. C. Wheeler
Truck. Motor A. H. Ehle
Tumbling barrel L. F. Thorpe
Turbine engine G. L. Dengler
Type holding device J. M. McGibney
Typewriter escapement E. H. Dodge
Typewriter escapement E. J. Fairfield
Typewriter key lever W. R. Fox et al
Typewriter spacing mechanism G. W. Donning
Typewriting machine W. C. Farnum
Typewriting machine escapement W. Wall
Unloading and conveying apparatus H. H. Bridgwater et al
Valve G. W. Adams
Valve A. I. Perry
Valve O. M. Alexander
Valve for steam heating systems. Vacuum T. F. Dexter
Valve or bung for beer barrels, &c C. F. Terney
Valve. Recnarging L. F. Williams
Valve. Reducing J. B. Waring
Valve. Train line whistle reducing A. Marrs
Valvular mechanism H. S. Ayling
Vehicle controlling device. Motor V. E. Chamberlin
Vehicle heater T. B. Woodward
Vehicle wheel F. A. Seiberling
Vehicle wheel J. K. Holtmann
Vehicles. Mounting for power apparatus for self propelled E. R. Hewitt
Vending mechanism J. H. Dean
Vessel closure F. C. B. Page
Veterinary tooth cutter or dental float C. F. Martin
Viscous. Purifying W. Loebell
Voting machine J. W. Hine
Voting stake socket H. W. Leverentz
Wash boiler E. A. Stevenson
Water closet floor flange W. McClintock
Water gate operating mechanism W. Scott
Water level regulator C. H. Chandler
Water or aging liquids. Apparatus for purifying F. K. Bowden
Water trap L. Schutte et al
Wheel retainer H. A. Janne
Whist apparatus. Duplicate I. C. Woodward
Whistle. Steam J. T. Hoban
Wick. Sanctuary lamp C. P. Baron
Winding machine J. Holdsworth
Window frame T. F. Ware

Window frame pocket F. V. Phillips
Wire clamp or stretcher J. M. Klein
Wire stretcher J. A. & J. H. Kimbro
Work holder J. C. Scoggins
Work supporting table V. Royle
Wrench R. H. Martens
Wrench A. B. Cook
Wrench G. W. Heyl
Wrench J. W. McKeever
Writing machine I. C. Myers
X-ray apparatus. Cabinet for transformers used in M. S. Clawson

DESIGNS.

Basket M. Swedberg
Table A. McKay

Issued October 10, 1905.

MECHANICAL PATENTS.

Acidester and making same. Methylenglycerinsalicylic K. Stephan et al
Air brake attachment W. Drake
Air compressor W. R. Leroy
Alloys. Extracting tin from tin lead C. A. L. W. Witter
Animal snaws. Treating W. Polatsik
Animal trap D. M. Cain
Apron clasp A. N. Fries
Automobile E. J. Berg
Automobile canopy frame L. C. Shipley
Automobile running gear J. O. Haas
Awning P. & W. Walger
Awning support C. E. Yenon
Axle end H. P. Maxim et al
Axles. Disk oiler attachment for car L. L. Logan
Bait holder T. S. Coffin
Baling press F. A. Ryther
Balls. Manufacturing golf E. F. Ross
Barrel blank ends. Machine for slotting E. E. Bartholomew
Barrel tilting apparatus D. Jones
Barrels or drums. Apparatus for emptying revolving A. Wunsch
Bath tub J. B. Mowry
Bearing. Electric meter J. J. Wood
Bed. Folding G. C. Fuller
Bed spring and mattress H. Kintz
Bedstead corner fastening W. G. Nelson
Bellows. Pedal for operating J. S. Sampaere
Belt. Chain G. Fouillaron
Belt shifting device L. Siegwart et al
Bending machine J. J. Wood
Bicycle fork M. McIntyre
Billiard cloth J. N. McIntyre
Binder C. G. Boden
Bit brace A. Bennett et al
Blind. Venetian F. H. & O. H. Schubert
Block molding machine N. W. Warren
Boiler cleaning device C. Fellner
Book leaf J. O. Deckert
Bottle. Siphon D. Landau
Bottles, jars, &c. Sheet metal closure for A. L. Weissenhanner
Bottles, jars, &c. Sheet metal stopper for 2 pats. A. L. Weissenhanner
Box C. N. Talbot
Box cover. Detachable H. G. Roth
Brake F. V. Winters
Brake beam C. E. Bauer
Bridle bit F. C. Atherton
Brush. Black lead W. Parker
Brush. Bristle J. H. Abbott
Buck rake or go-devel A. G. Harris
Bucket. Collapsible C. E. Frank
Buckle. Back band J. S. Cox
Buckle. Toothless M. Barabasz
Building blocks. Means for lifting A. A. Schultz
Building structure. Composite J. B. Clayton et al
Bung 2 pats. J. Franke
Buoy. Wreck indicating W. G. Edgecomb
Bur. Safety A. M. Ferrin
Cables and similar devices. Covering for O. Wilhelmi
Cables or conductors. Conduit for electric T. E. Devonshire
Cake cutter J. R. Lisle
Calculator. Date J. L. Milton
Calculator. Pocket F. S. Beckett
Calendar J. L. Landrum
Calendar J. Cussons
Calendar apparatus. Universal H. W. Wilson
Camphor. Making 2 pats. K. Stephan et al
Can closure T. W. Forster
Can hoist. Milk I. Deachman
Can wiping machine S. E. Morral
Candelabrum R. C. McKilliget
Candlestick and match safe. Combination miner's J. B. Lindahl
Cane. Repeating torpedo H. H. Bernhard
Car E. S. Bucknam
Car and truck bolster J. M. Ames
Car brake beam. Railway J. M. Ames
Car brake rigging D. McCarthy
Car. Bunk B. D. Curtis
Car construction R. J. McHale et al
Car coupling L. V. H. Burnell
Car door. Freight J. H. Chenoweth
Car. Hopper C. Wright
Car of the drop bottom gondola type. Transportation R. B. Kendig
Car side bearing. Railway W. M. Smith
Car. Steam motor railway C. Fellner
Car window guard A. D. Cooke
Carbureted air machine F. Picard
Carbureting apparatus and feed therefor for internal combustion engines J. S. Moreland
Carton. Folding E. E. Flora et al
Casein mangling machine A. B. Ireland
Cash register W. R. Heinritz
Cash register F. Skerl
Casket. Sheet metal E. A. Post
Caster I. G. Revels
Casting metals J. Eaton-Shore
Cattle guard J. H. Valteau
Chandelier T. D. Greene
Chart W. B. Glisson
Check hook P. S. Peterson
Chuck B. M. W. Hanson
Chuck. Drill A. F. Lagerstrom
Churn A. A. Seat
Churn dasher W. H. Brown
Chute J. Koller

Circuit breakers. Means for controlling G. H. Hill
Clamp J. J. Kerr et al
Clamping support for tackle for car unloading devices J. G. Westbrook
Clay shingles and the like. Machine for making J. Bensing
Clothes lifter M. Wemple
Clutch. Coil friction 2 pats. W. H. Lindsay et al
Clutch. Coil friction W. H. Lindsay
Coal cutting machine W. E. Garforth et al
Coal, ores, and other minerals for draining them of water. Method of and apparatus for treating F. Baum
Coal washing apparatus J. Anderson
Cock. Sea W. England
Cocoa paste. Manufacture of F. E. F. Neumann
Coin forming apparatus F. W. Glading
Coin support. Field N. Macneale
Coils. Machine for taping G. P. Whittlesey
Coin assembler and packer J. E. Lenahan
Color. Manufacturing white lead A. Hultze
Comb for applying liquid to the hair G. Delory
Concrete block mold E. Keagy
Concrete composition L. Lane
Concrete mixer H. Miscampbell
Conductor terminal R. Prugger
Control apparatus G. H. Hill
Controller L. A. Tirrill
Controlling the descent of loads or passengers. Apparatus for T. Groves
Conveyer T. S. Miller
Conveyer chain shoe J. F. Wells
Coup. Folding T. J. La Rose
Copy holder T. O. Lynch
Corn. Machine for cutting off the butt ends of ears of S. E. & W. W. Morral
Cotton cultivator S. C. Powe
Cotton gin G. A. Lowry
Crank handle C. H. Schrader
Crate. Bottle or carboy J. G. Lettelier
Crate. Folding S. Turner
Crate for bottles and carboys. Locking and dispensing J. G. Lettelier
Cream separator H. Kibele
Cupolas, &c. Molten metal conductor for C. L. Glover
Curtain hanger A. J. Culture
Cuspidor J. W. Cooper
Cuspidor. Flushing 2 pats. J. W. Cooper
Cutting and folding machine C. A. Tripp
Cutting or perforating tool J. S. Casey
Cylinder head C. F. Candler
Dampening machine. Sheet A. B. Sherwood
Dead centers. Means for overcoming J. Whittington
Decorative material and wall covering E. C. Baack et al
Dental engine attachment F. O. Cates
Depositing machine A. W. Copland
Derailing mechanism L. L. Logan
Designs on opposite surfaces of sheets of fibrous material. Apparatus for forming F. W. Moore
Dike. Submerged D. Neale
Dish drainer M. H. Silk
Dish drainer M. A. Youkers
Display bin. Unit system H. G. Roth
Display case. Merchandise W. L. Pope
Door G. T. Buddle
Door and window screen G. Klay
Door closer G. N. Hall
Door fastener J. W. Dickson et al
Door opening device. Trap O. M. Edwards
Door spring J. L. Sheppard
Draft gage. Multiplying G. H. Barrus
Draft sill T. R. Brown
Drawers. Maternity N. W. Anderson
Dredging cutter S. S. Wyer
Drill bit. Water or air feed side inlet C. H. Shaw
Drill machine W. Meissner
Drilling machine. Combined A. Bauser
Duplicator A. M. Ayers
Dust collector P. C. Miller
Dye and making same. Brown sulfur A. L. Laska
Dye. Anthraquinone P. Thomaschewski
Educational device H. W. Barr
Electric conductors. Supporting clamp for J. R. Kearney
Electric controller R. Wellens
Electric lighting system G. E. Palmer
Electric signal device for railways E. H. B. Knowlton
Electric susceptibilities. Apparatus for electrostatic separation of substances of diverse C. H. Huff
Electric switch. Automatic W. S. Guthrie
Electric switch face plate N. Marshall
Electric switch. Quick break H. C. Wirt
Electrical controller H. D. James
Electrical machines. Armature cross connection for C. B. Mills
Elevator doors and the like. Guideway for W. B. Gervais
Elevator shaft or well way gate M. Turnbull
End gate L. C. Phillips
Envelop machine E. P. Waterhouse
Evaporator H. C. Tabrett et al
Excelsior wrappers and pads. Machine for the manufacture of H. F. Shadbolt
Expanding and flaring tool L. D. Lovekin
Fan or pump. Centrifugal 2 pats. S. C. Davidson
Fastener. Shutter E. Niggl
Fence post G. M. Koozt
Fence post J. W. Morgan
Fence post A. A. Dutton
Fence. Wire A. W. Swender
Fences. Cement post for wire H. W. Timmons
Fencing machine. Wire W. D. Ferris
Filter C. L. Parmelee
Filter side plates or girds. Making C. P. Schwarz
Fire escape D. S. Sebastian
Fire escape. Portable M. H. Kennedy
Firearm P. F. Zeise
Firearms. Magazine feed drum for magazine F. von Mannlicher
Fish hook guard F. J. Baker
Fishing reel frame W. Shakespear, Jr
Flexible coupling O. F. Lane
Fluid pressure motor F. H. Niles
Foot rest A. D. Ray
Forms for rule and figure tables. Producing L. C. Hay

Furnace valve. Water-cooled F. H. Treat
Fuse or cut-out. Electric B. S. Luther et al
Fused material. Manufacture of articles from E. Hart
Game apparatus E. Stratton
Game apparatus G. C. Wilson
Garbage receptacle J. H. Meyerhofer, Jr
Garment hook J. C. Diamant
Garment supporting device J. W. Stockwell et al
Gas burner safety attachment P. Hochheimer
Gas fixture safety device P. Hochheimer
Gas fixtures. Means for attaching supply tubes to C. H. Page, Jr
Gas generator. Acetylene A. H. Graves
Gas lighting. Incandescent C. Scott-Snell
Gas reheater. Furnace H. Howard
Gas retort charging machine J. West
Gas retort closing device R. Reister
Gate C. S. Carnahan
Gate F. Lichtfeldt
Gear cutting machine G. A. Ryd
Gear. Speed reduction and driving J. S. Fairfax
Gearing G. P. Dorris
Gearing. Change J. S. Moreland
Glass bottom mug H. H. Allen et al
Globe tester H. C. Spinney
Glove J. J. Weakley
Glove A. D. Ulrich
Grain drill speed gearing device A. Armitage et al
Granitoid. Tool for smoothing J. C. Schottler
Grate. Ventilating R. J. Hughes
Grinding and polishing machine T. A. Panyard
Grip mechanism. Friction E. Stancliff
Gumming mechanism E. P. Waterhouse
Gun cleaner E. M. Moos et al
Gun. Range finding L. K. Scott
Guy clamp F. D. Ogden
Hammock stand R. C. Funke
Harrow S. A. Phenix
Harrow M. Brennan
Harrow. Weeding L. M. Morrow
Harvester C. O. Wyman
Hay press A. E. Skadden
Heating furnace E. S. Berry
Heel for boots and shoes. Separable U. Santini
Hinge. Ball bearing B. F. Foss
Hog nose cutter S. H. Miller
Hoisting mechanism G. W. Davidson
Holder. Trammel O. W. Heck
Hose M. Cole
Hopper. Dumping J. L. Searfoss
Horseshoe calk grinding machine G. H. Coates
Horseshoe making machine G. Chebet et al
Hose nozzle W. Burnett
Hose or pipe coupling H. Duffin
Hub attaching device A. H. Worrest
Hub attachment Y. D. Hance
Hydraulic classifier H. S. Bailey
Hydrocarbon motor A. A. Low
Ice cream mold J. S. Hicks
Illusionary effects. Device for producing H. S. Maxim
Incubator G. W. Mann
Ingot molds for the casting operation. Apparatus for preparing H. Carlsson
Inhaler D. L. Sprague
Injector G. H. Boetcher
Insect destroyer F. Krectel
Insulator mold A. Kribs
Internal combustion engine A. B. Calkins
Iron, ingot steel, &c. Deoxidation of ingot R. Eichhoff
Iron or steel. Compound for hardening or case hardening G. Reininger
Jack arm W. E. Magie
Jar closure. Metal A. L. Weissenhanner
Joint former R. M. Corcoran
Joist support. Adjustable C. E. Springer
Journal bearing T. C. Frost
Journal box brass F. J. Finning
Journal Car B. R. Stare
Journal lubricator P. H. Conradson
Kiln A. F. Dietz
Knitting machine transferring device J. D. Hemphill
Lactalbumen and milk sugar. Producing A. S. Ramage
Ladder. Extension step J. B. Lockerby
Ladder. Folding O. E. Lindfors
Lamp base cup. Incandescent W. D. Packard
Lamp. Electric arc E. Batault
Lamp holder. Adjustable electric H. F. Holtmann
Lamp incandescent mantle support. Gas R. W. Huss
Lamp. Inverted gas light incandescent H. W. Hellmann et al
Lamp of the inverted type. Incandescent gas W. Maaske
Lamp shade. Ornamental L. Schmitt
Lamps. Leading in wire for incandescent electric T. A. Edison
Lampblack. Apparatus for making S. Salberg
Lathe tool carriages. Bracing attachment for B. M. W. Hanson
Lathe. Turret R. K. Le Blond et al
Lathes. Taper turning and back rest attachment for B. M. W. Hanson et al
Lathes. Taper turning attachment for turret B. M. W. Hanson
Leaf J. O. Peckert
Leaf turner J. M. G. Dams
Ledger. Card J. H. Rand
Lens W. Churchill
Liquids of different density. Separator for J. & A. Niclausse
Locomotive. Electric L. Moss
Locomotives. Apparatus for returning waste water F. O. Whealon
Logs. Truck for handling and carrying T. A. L. Strange
Loom jacquard mechanism J. D'Horst
Loom shuttle box motion H. Bardsley
Loom thread cutting temple H. Cote
Loom weft replenishing mechanism C. O. Sittig
Lubricating device R. S. Mears
Lubricator H. M. Lofton
Mail box E. F. Wallace
Mail deliverer J. Pounds
Marking machine paper strip A. Monforts
Mattress envelop J. Van Slyke

- Massage apparatus for improving the hearing..... E. W. Schneider
 Mattress frame..... J. P. Lein
 Measuring instrument, Electric..... F. Holden
 Measuring instrument, Electric..... E. Thomson
 Meat impregnating apparatus..... W. Schramm
 Metal slugs, Making..... M. Reid
 Metal surfaces, Protecting..... F. Uihemann
 Metals of the alkali group by electrolysis, Production of..... E. A. Ashcroft
 Milk Refining..... G. Daseking
 Mitten..... J. L. Jones
 Moistener and sealer of envelopes, wrappers, &c..... J. T. Wisner
 Mold..... D. G. Zeigler
 Mold..... N. H. Battjes
 Molding apparatus..... T. M. & J. N. Le Hew
 Motor control system..... F. E. Case
 Motor starter, Automatic electric..... W. M. Cumiskey
 Mowing machine grass catcher..... R. J. Parrish
 Music indicator..... J. MacMaster
 Music leaf turner..... L. P. Holt
 Nest..... H. E. Babione
 Nitrogen compounds, Forming..... A. M. Gow
 Nut and pipe wrench Combined..... W. O. Tarr
 Oil and grease separator..... F. Moore
 Oil burner..... E. Christensen
 Oil from seeds and the like, Press for extracting..... V. D. Anderson
 Oil separator..... W. Butzow
 Optical distorting apparatus..... D. P. Moore
 Ore separator..... L. J. Vandervoort
 Organs, Pneumatic controlling device for..... H. L. Davis
 Package..... J. J. Hinde
 Package arranging machine..... H. H. Pulver
 Packing ring..... S. Schultz
 Paddle wheel, Tanner's..... E. L. Bateman
 Pails, Attaching ears to tin..... A. A. Kramer et al
 Paint tube..... I. W. Drummond
 Painting apparatus, Wheel..... G. H. Connell
 Painting machine..... F. Koelsche et al
 Paper into shavings, strips, &c, Machine for cutting..... A. Henderson
 Paper lace and the like, Pattern cylinder for use in the manufacture of..... M. Heilmann
 Paper roll core..... T. Elloxman et al
 Paper trimming machine..... O. E. Lirdfors
 Paper tubes into lengths, Machine for cutting..... O. M. Lissak
 Pasteurizer..... W. J. Ruff
 Pasteurizing milk or other fluids, Cooler for use in..... L. Sturges
 Pedal attachment for mechanical instrument players..... C. L. Emmons
 Phonograph..... W. Asam
 Piano, Manually and mechanically operative..... J. Sampere
 Piano player, Automatic..... J. B. Walker
 Pianissimo device..... P. Krumscheid
 Pianoforte agraffe..... C. P. Blinn
 Picture hanger..... H. G. King et al
 Pince nez frame..... A. Oehlschlager
 Pipe hanger..... W. C. Smith
 Pitching machine..... P. Torchiani
 Placket closer..... J. P. Baumgartner
 Plaques, Method of manufacturing ornamental..... H. L. Beach
 Platform Dumping..... C. E. Bird
 Playing balls, Making..... F. H. Richards
 Plow..... C. Collins
 Plow, Disk..... G. Spalding
 Plow, Garden..... W. E. Jones
 Plow hitch, Combined beam and frame..... D. E. Speicher et al
 Pocket knife..... G. I. Herwig
 Post hole shovel..... L. Stritter
 Powders, Producing shell..... J. P. R. James
 Precious metal bearing materials, Treating..... C. W. Merrill
 Presser head..... J. G. Johnston
 Presser equalizer..... C. C. Grimes
 Printers' rules, Prolonging the life of..... T. F. Dixon
 Printing and auditing device..... E. J. Brandt
 Printing machine, Address..... E. Meier
 Printing machine, Combined perfecting and two color..... L. W. Southgate
 Printing machine, Oil cloth..... W. H. Waldron
 Printing plate and making the same, Composite..... H. A. W. Wood
 Printing press..... J. L. Firm
 Printing press plate holder..... C. G. Wellset et al
 Printing presses, Driving gearing for..... R. T. Johnston
 Propeller..... J. M. Jones
 Propeller wheel..... 2 pats..... H. J. Perkins
 Propelling mechanism..... F. A. Baker
 Propelling mechanism, Boat..... H. W. Thomas
 Propelling vessels, Means for..... K. P. Hangl
 Pulp barrel or keg..... F. E. Keyes
 Pulverizing centrifugal mill..... L. Hunt et al
 Pulverizing mill..... J. H. Davis
 Pump..... H. J. Park et al
 Pump for atomizers, Door operated air..... W. H. Rose
 Pump valve..... H. M. Chase et al
 Pumping jack..... F. Smeed
 Punch, Ticket..... R. T. Piscicelli
 Puzzle..... B. Silfa
 Radiator..... A. D. Ray
 Radiator water evaporator..... C. E. Faye
 Rail clamp and tie..... E. M. Terwilliger
 Rail joint..... J. A. & I. J. Crawford
 Rail joint..... W. A. Willis
 Rail joint fastener..... J. Fidler
 Rail moving apparatus, Switch..... J. P. Coleman
 Railway crossing..... E. B. Entwistle
 Railway rail..... L. Perenyi
 Railway signal..... F. P. J. Patenall et al
 Railway sleeper..... E. S. De Voe
 Railway point operating and controlling means..... T. Ducouso et al
 Railway rail joint and chair..... A. C. Deal
 Railway switch operating device..... H. White
 Railway switches, Apparatus for controlling the operation of..... C. C. Anthony
 Railway tie, Metal..... F. F. Roberts
 Range finder..... B. A. Fiske
 Receptacle closure..... J. C. Chadwick
 Receptacles, Hermetic closure for..... W. A. Lorenz
 Refuse burner..... J. R. & A. B. Kilbourne
 Register and mechanism therefor..... A. R. Beal
 Reversing switch..... I. F. Baker
 Revolving screen..... W. Crossley
 Rope fastener..... G. N. Heald
 Ropes, cables, etc. Holder or socket for wire..... W. H. Becker et al
 Rotary engine..... J. E. Gearhart
 Rotary engine..... N. K. Smith
 Rotary engine..... P. Bartoletti
 Rotary engine..... P. F. Guthrie
 Rotary engine..... J. B. Petit
 Saddle horn..... F. H. Perkins
 Sap spout..... J. F. Warner et al
 Saw, Band..... C. Seymour
 Saw clamp..... M. D. Converse
 Saw frame attachment, Circular..... L. M. Taylor
 Sawmill carriages, Set and receding mechanism for..... J. J. Galway
 Sawing machine..... E. A. Schilbach
 Scale..... C. G. Strubler
 Scouring machine..... G. H. Rupley
 Seed cleaner and grain separator..... J. C. Benson
 Seed delinting apparatus, Cotton..... E. J. O'Brien
 Seed linter, Cotton..... W. C. Robinson
 Self-setting trap..... S. J. Massie
 Semielliptic spring..... G. Baumann
 Separator..... C. W. A. Koelkebeck
 Sewing machine bindstitching and serging attachment..... W. M. Murphy
 Sewing machine gage, Hat..... W. Jasper
 Shaft coupling, Flexible..... J. H. Montstream
 Shaft lining..... E. Albrecht
 Shaft sinking apparatus..... E. Frien et al
 Sharpening device..... C. M. Mallory
 Shears and scissors..... O. C. Abbott
 Sheet metal shears..... C. D. Wagner
 Sheet metal stopper..... A. L. Weissenthanner
 Sheets while binding the same, Device for preparing and holding..... F. Blanchard, Jr
 Shock loader..... D. J. Green
 Sickle bar holder..... O. Norton
 Sieve..... J. Chalewski
 Sieve, Grain..... E. O. Hough
 Signal safety device, Lamp..... F. B. Corey
 Signal system..... V. Chisholm
 Signal system, Automatic block..... R. Logsdon et al
 Signaling..... F. L. O'Bryan
 Signaling through submarine and like cables..... O. J. Lodge et al
 Silicon carbide blocks, Production of molded..... F. Bolling
 Sink device..... W. P. Dunn
 Skate wheel, Roller..... B. S. Peard
 Slag or cinders from hollow or solid blanks, Machine for removing adhering..... H. Ehrhardt
 Slugs, Machine for making metal..... M. Reid
 Sluice box, Panning..... J. F. Wiswell
 Smoke consuming device..... R. Wilde
 Snow melter..... J. Elsner
 Spark arrester..... O. L. Anderson
 Spark arrester..... E. Tomer
 Sparking device..... B. G. Gilbough
 Spinning frame thread guide..... C. A. Pierce
 Spool holder..... M. B. Kreeger
 Spooler, Waste end..... R. B. Robinson
 Stage bracket Extension..... F. W. Adams
 Stalk breaker or reducer..... R. L. Johnson et al
 Stall floor, Horse..... I. C. Adriance
 Stapling machine..... L. C. Crowell
 Stay, Garment..... E. K. Warren et al
 Steam engine..... C. S. Davis et al
 Steam trap..... E. F. Idell
 Steam trap..... F. A. Simonds
 Steel making apparatus..... F. E. Young
 Steel scrap into iron, Converting..... E. M. Schulz et al
 Stencil frame and mounting therefor..... H. J. Palmer
 Stereotype casting apparatus..... A. E. & E. Hall
 Stiffening material..... E. K. Warren et al
 Stocking suspender..... A. Wardroper
 Stool, Folding..... E. Shupe
 Stopper, Pulp..... R. W. Goeb
 Stoppers, Machine for forming pulp..... R. W. Goeb
 Stove and furnace smoke consuming device..... D. Lange
 Stove for heating flat irons..... F. Schitka
 Stove protector..... E. Ralls
 Structures, Device for forming ornamental..... T. F. Hall
 Stud wrench..... F. L. Cleveland
 Sugar crystallizing apparatus..... R. Folsche
 Suit case or satchel fastener, catch, or lock..... J. Hammesfahr
 Surfaces on cylindrical bodies, Apparatus for forming irregular..... M. Reid
 Surgical appliance..... J. Kugler
 Switch throwing device, Electric..... L. H. Cox
 Tag attaching device..... E. G. Pierce
 Telephone switch shaft lock, Automatic..... J. Erickson
 Telephone system..... C. E. Egan
 Telephone system and apparatus..... C. E. Egan
 Telephones, Index attachment for..... F. E. Farmer
 Telephonic apparatus..... C. E. Egan
 Tennis racket..... A. Johnson
 Thermometer, Clinical..... C. Nurnberg
 Ticket delivering, receiving, and registering apparatus..... A. Marsh
 Tide or backwater gate..... C. H. Dodd
 Tile, Roofing..... W. E. Miksch
 Time alarm..... C. J. Emerson, Jr
 Tin from tin slag, Extracting..... C. A. L. W. Witter
 Tire, Pneumatic..... H. W. C. Kuck
 Tire valve Pneumatic..... L. R. Bave
 Tires, Attaching collar for pneumatic..... J. C. N. Fonilloy
 Tobacco pipe..... C. Wellner
 Tool, Combination..... T. H. Bradley
 Tool for removing obstructions from drains..... T. A. Woodlidge et al
 Tool holder..... T. J. Moore
 Top, Spinning..... E. Friz
 Torpedo launching apparatus..... A. E. Jones
 Torpedo launching apparatus, Broadside underwater..... A. E. Jones
 Toy..... W. Anderson
 Toy..... E. P. Lehmann
 Traction wheel and water tank, Combined..... G. Spearman
 Tramway or railway apparatus, Aerial..... S. L. Welp
 Transformer cut out..... 2 pats..... J. P. Hetherington
 Tray or lap board, Folding..... C. E. Stenersen
 Tree guard or protector..... F. Lichfeldt
 Trench filling machine..... G. R. Hively
 Trolley..... E. J. Parker
 Trolley and trolley support..... H. P. Davis et al
 Trolley for electric railway vehicles..... H. P. Davis et al
 Trolley harp..... C. L. Hooper
 Trunk fastener..... G. Goerk
 Truss..... J. K. Stockton
 Tube forming machine..... G. B. Lamb
 Turbine engine, 2 pats..... L. Hachenberg
 Turbine engine, Steam..... J. C. Buckbee
 Turbine, Expansion..... M. Neumayer
 Turbine governing mechanism..... J. G. Callan
 Turbine governing mechanism..... R. H. Rice
 Turbine high speed governor, Steam..... C. V. Kerr
 Turbine regulating device..... F. Svoboda
 Turbine, Steam..... G. Zahikjanz
 Two piece handle..... T. W. Wright
 Typewriting machine..... T. C. Smith
 Typewriting machine..... A. Brandl
 Valve..... M. Warren
 Valve..... J. J. Bowes, Jr
 Valve..... J. R. Reniff
 Valve for steam heating systems, Fitting or vacuum..... T. F. Dexter
 Valve, Inflation..... J. E. Keller, Jr
 Valve mechanism, Emergency and vacuum breaking..... W. L. R. Emmet
 Valve, Motorman's..... F. B. Corey
 Valve, Plug..... J. H. Chandler
 Valve resealing machine..... T. B. Williams
 Valve seat ring, Sheet metal..... C. E. Huxley
 Valve, Triple..... J. Dillander
 Vehicle and controlling the same, Self-propelled..... E. J. Berg
 Vehicle brake, Automatic..... J. Krug
 Vehicle reversing gear, Motor driven..... H. A. Kiser et al
 Vehicle speed indicating and alarm device..... J. E. Parrish et al
 Vehicle wheel..... R. Weideman
 Vehicle wheel..... T. Appleton
 Veil pin or garment fastening device..... F. A. Curry
 Vessel closure..... J. K. Penfold
 Veterinary mouth speculum..... I. C. Carstensen
 Vise jaw..... E. B. Clark
 Wagon body lifter..... J. W. Coghill, Jr
 Wagon cradle posts, Device for securing and releasing timber..... B. G. von Gyulafalva
 Wagon, Dumping..... W. E. Currie
 Warp beam tension device..... G. Keller
 Washstand..... M. Tufty
 Washing apparatus, Coal..... R. L. Martin, Jr
 Washing machine..... T. H. C. Beall
 Washing machine..... T. Fitzgibbon
 Washing machine..... J. H. Myers
 Watches, Balance staff for..... C. E. De Long
 Water closet..... W. H. Osborn
 Water closet flushing apparatus..... J. A. Vogel
 Water tube boiler..... W. T. Urie
 Weeder..... G. S. Carson
 Weighing machine, Automatic..... F. Stebler
 Weighing machine, Automatic..... R. D. Webb
 Weighing machine, Automatic, 2 pats..... C. F. Beakbane et al
 Weighing or measuring apparatus, Grain..... H. Grassley
 Well derrick, Oil..... S. M. Foltz
 Well drilling machine..... A. Klay
 Wheel..... P. Parik
 Wheel..... W. W. Clark
 Wheels and rails, Device for increasing the adhesion between..... R. C. Lowry
 Window fastener..... A. Rosenberg
 Window, Reversible..... G. W. Blanchard
 Wire coil forming machine..... C. A. Monnier
 Wire feeding machine..... E. Schuler
 Wire gate, Frameless woven..... S. P. McCaslin
 Wire rods, &c, Apparatus for conveying bundles of..... C. R. Hinchman et al
 Wire stretcher..... D. D. Miller
 Wire stretcher and clamp, Combined..... J. W. Hardesty
 Woodworking tool..... H. Simpson
 Woven wire fence tie..... J. D. Crandell
 Wrench..... J. Hooper
- ### DESIGNS.
- Chair frame, Barber's..... G. D. Chisholm
 Dispensing receptacle top..... G. Kirkgaard
 Glass receptacle..... J. Pauli et al
 Piano case..... W. Lane
- ### Issued October 17, 1905.
- ### MECHANICAL PATENTS.
- Adjustable axle..... W. M. Pond
 Adjustable horizontal bar..... S. Pierro
 Advertising cabinet..... C. H. Collins et al
 Advertising device..... G. W. Escheenbach
 Air heater..... A. S. Kiefer
 Amusement apparatus..... A. A. Welsh
 Amusement device, Open air..... J. W. Corley
 Annunciator..... A. L. Peterson
 Arches, Centering for and method of constructing..... D. B. Luten
 Automatic press..... H. A. Herr
 Automatic sprinkler system..... W. C. Shaffer
 Awning..... W. H. Brown et al
 Bale tying apparatus..... O. J. Hubbard
 Baling press..... A. E. Beatty
 Band cutter and feeder..... C. E. Curtiss
 Bandage for surgical purposes, Emergency..... S. E. Heineman
 Bearing, Antifriction..... J. M. Green et al
 Bearing, Ball..... R. H. Apelt
 Bed..... C. Thompson
 Bed, Obstetrical and invalid..... J. Hall et al
 Bedsteads in position for display and other purposes, Means for holding..... W. H. Beal
 Beet blocker..... T. G. Butler
 Bending apparatus..... J. A. Kaplan
 Bin gate..... J. S. Lawson
 Binder..... M. S. Kuhns
 Binder, file, and the like, Loose leaf..... G. Higginson
 Binder, file, paper-clip, and the like, Loose leaf..... G. Higginson
 Binder, Loose leaf..... E. Coleman
 Binder, Temporary..... T. P. Halpin
 Binders, Latch for temporary E. A. Trussell
 Blast furnace..... A. B. Shedd et al
 Blind operator and lock..... K. O. Hutt
 Block signal system, Automatic..... J. McIlwain
 Blotter, Wrist supported..... M. Monis
 Boat, Stone..... M. R. Rawson
- Boring tool holder..... O. G. Otewalt
 Bottle..... B. Buccieri
 Bottle..... L. Fox
 Bottle closing device..... C. Carr
 Bottle closure..... C. M. Daly
 Bottle closure..... W. E. Gildea
 Bottle neck closure..... E. C. Shilling
 Bottles and other like receptacles, Stopper for..... R. Muller
 Bottles, &c, Receptacle for milk..... W. C. Lyon
 Box making machine..... W. Lipps et al
 Brake shoe, 2 pats..... C. F. Bingham
 Bread board..... M. W. Quirk, Jr
 Brooder and heater therefor..... E. C. Hare
 Bucket elevators or the like, Mechanism for operating..... O. Krell
 Bucket, Grab..... A. E. Brown
 Buffering machine..... J. Busfield
 Building block and wall..... R. J. Schwab
 Building stone, Armed..... J. G. F. Lund
 Buttonhole reinforce..... J. A. Mac Pherson, Jr
 Cabinet, Combination desk..... J. D. Warren
 Cable grip..... A. J. Neff
 Cable hanger..... G. Lambert
 Calculating apparatus, Logarithmic..... J. Wilkes
 Calendar..... A. A. Low
 Calendar apparatus, Perpetual..... H. M. Wilson
 Candles, Manufacture of composite paraffin..... G. W. Gray
 Canvas tightener, Platform..... E. A. Johnston
 Car brake..... G. Gremm
 Car brake..... A. J. Hix
 Car coupling, 3 pats..... G. A. Hermanson
 Car coupling..... J. E. Nisbet
 Car door fastener..... F. T. Hartman
 Car fender..... G. F. Taylor
 Car platform treadle, Hand..... A. J. Allison
 Car sand box..... D. B. Keepports
 Carbureter, Hydrocarbon engine..... F. W. Hagar
 Carbureter, Hydrocarbon engine..... J. H. Johnston
 Carpet stretcher..... R. D. Williams
 Carpet sweeper..... M. N. Knell
 Cartridge..... A. M. Hele
 Centrifugal separator..... C. Nordstrom
 Chair..... F. J. Scherrer
 Chair..... J. B. Lawrence
 Change machine..... T. I. Potter
 Cheese cabinet..... W. S. Kauffman
 Cheese cutter..... H. F. Dunn
 Chlorates and bichromates, Producing..... A. E. Gibbs
 Cigar extinguisher and protector..... A. E. MacLachlan
 Clamp..... T. H. Fairchild
 Clinometer..... W. R. Bawden
 Closet joint..... W. E. Hindsdale
 Clothes closet..... M. S. Henrioud
 Clutch and changeable speed and reversing gear mechanism..... F. G. Seeley et al
 Coal drill..... C. W. Cowell
 Coal drill..... W. H. Clarkson
 Cock Gage..... F. W. Leidecker
 Coffee strainer..... A. R. Daragh
 Collecting and preventing the dissemination of dust..... L. S. van Westrum
 Composition of matter..... E. Wilde
 Conduit and expansion joint therefor, Underground..... B. R. Fales et al
 Converting motion mechanism..... E. C. Winters
 Conveyor..... O. D. Moses
 Cooking apparatus, Can..... J. & N. G. Baker
 Cooking vessel..... G. W. Knapp
 Copper matte, Treating copper tops in the refining of nickel..... R. R. Maffett
 Cork puller..... J. Brown
 Corks in bottles, Device for holding..... J. P. Spang
 Corn sheller..... D. G. Eikenberry
 Cot or lounge, Spring..... A. E. White
 Cotton chopper..... G. G. Coldiron
 Cotton cleaning and condensing machine..... E. Reagan
 Cream cooler and aerator..... M. F. Stadtmuller
 Cream separator..... H. D. Zehrbach
 Cream separator, Centrifugal..... J. Laurell
 Crib and baby carriage..... A. E. White
 Cultivating implement..... F. W. French
 Cultivator..... L. A. Randall
 Culvert, sewer, and other pipes, Mold for..... J. Robinson
 Curative apparatus..... W. J. O'Donnell
 Current motor..... A. A. Morton
 Current motor, Alternating..... R. Lundell
 Curtain fixture..... W. N. Bebout
 Curved figures, Apparatus for scribing..... F. H. Bissell
 Damper..... J. S. Peterman
 Dentifrice..... E. H. Gane
 Diffusion process..... H. Schwarz
 Disinfecting device..... W. Dreyfus
 Ditching machine..... C. P. Gable
 Dividers..... W. A. Bernard
 Door..... A. C. Mortenson
 Door closer..... R. F. Downey
 Door operator, Furnace..... H. Deaderick
 Door rail Sliding..... U. G. McQueen
 Door, Vehicle..... E. L. Morris
 Dough to the forms required for loaves, Machine for automatically shaping masses of..... W. G. Thomas
 Doughnut machine..... W. W. Gray et al
 Dowel making machine..... W. C. Farnum
 Draft equalizer..... E. A. Barry
 Draft rigging..... M. Kennedy
 Drawing press..... P. M. H. Lange
 Drill..... C. E. Stone
 Drying and roasting furnace..... C. E. Ballow et al
 Dye and making same, Green blue sulfur..... I. Levinstein et al
 Elastic wheel..... C. M. P. G. Lungwitz
 Electric conduction for vehicles, System of overhead..... E. Baucio
 Electric coupling..... N. Marshall
 Electric torch..... J. C. Perry
 Electrical distributor for gas engines..... L. S. Chadwick
 Electrotype plate holder..... F. H. Hoffstedt
 Elevator mechanism..... J. Dillon
 Engine..... J. W. Sunderland
 Engines, Magneto electric ignition apparatus for explosion..... G. H. Hold
 Excavating apparatus..... H. Ruchler
 Expressing press..... J. S. Frey
 Extension table, Pedestal..... C. W. Munn
 Eyeglasses and spectacles, Clip for..... W. W. Hoffman
 Fastening means for skees..... S. S. Andersen
 Feeding device, Sheet..... H. K. King

Feeding machine. Sheet..... H. K. King
 Fence post..... E. McDaniel et al
 Fence post..... J. F. Haffey
 Fence post. Molded..... T. H. Bradley
 Fence weaving machine..... G. W. Whittington
 Fences. End and corner post of..... D. Warner et al
 Fertilizer distributor..... P. A. Whitley
 Fertilizer distributor feed mechanism..... D. B. Merrell
 File cabinet..... G. S. Buck
 Filter. Force..... J. Johnson et al
 Filter. Metallurgical..... C. Manuel
 Filtering dam..... G. W. Durbrow
 Finger developer. Individual..... L. B. Beall
 Finger ring. Ornamental..... L. E. Sadler
 Fire alarm operating device..... O. K. Nestor et al
 Fire alarm or signal..... J. A. Chase
 Fire escape..... C. W. Anderson
 Fire extinguisher..... T. F. Handy
 Firearm..... R. Frommer
 Firearm. Automatic..... C. Freeman
 Firearm. Magazine..... C. H. A. F. L. Ross
 Fireproofing compound..... W. D. Patten
 Fishing rod..... L. G. Kunze et al
 Fishing rod finger grip..... A. W. Bishop
 Flow register..... C. M. Allen
 Flower pot support..... W. T. McQuary
 Fluid pressure brake..... 2 pats.
 Fluid pressure brake system. Automatic..... M. W. Hibbard
 Folding machine..... J. S. Bubbs
 Folding machine punching mechanism..... H. K. King
 Fuel mixing device for gas engines..... H. J. Smith
 Furnace..... W. L. Forster
 Furnace..... J. A. Herrick
 Furnaces. Bell operating and controlling mechanism for blast..... J. P. Coleman
 Fuse plug. Electrical..... G. B. Thomas
 Gallery. Shooting..... W. J. Bowerman
 Game board..... W. G. Paxton
 Garment fastening..... F. C. Dulac et al
 Garment hanger. Portable..... A. M. Taylor
 Gas burner. Incandescent..... T. F. Kent
 Gate operating device..... C. W. McMasters
 Gear for internal combustion engines. Valve..... F. M. Rites
 Gear rims. Making..... H. Y. B. Duff
 Gearing. Changeable..... J. M. Billingsley
 Gearing. Changeable speed..... O. W. Johnson
 Gold saving apparatus..... J. A. Clark
 Golfing club and appliance..... J. R. Brown
 Grain binder headboard..... C. A. A. Rand
 Grain elevator and dump..... D. Otto
 Grapple..... W. H. Geerken et al
 Grinding machine..... W. & F. Dorey et al
 Gun. Breech loading breakdown..... A. H. Fox
 Gun carriage..... W. S. Ishman
 Gun mount..... M. C. Taylor
 Gun sight..... J. J. Frick
 Guns. Ejector mechanism for breech-loading..... G. W. Roy
 Guns. Single trigger mechanism for double-barrel..... H. Price
 Gymnasium apparatus..... A. J. Thornley
 Hair clipper..... G. H. Coates
 Hammer. Pneumatic..... J. J. Murphy
 Hammer. Power..... O. B. Reynolds
 Harrow..... B. F. Price
 Harrow..... E. C. Roades
 Harrow..... H. Rowan
 Harrow. Disk..... L. Case
 Harvester. Beet..... L. Stimart
 Harvester binder..... E. A. Johnston
 Harvester elevator..... C. A. A. Rand
 Harvester reel drive mechanism..... C. A. A. Rand
 Harvester self binder..... E. A. Johnston
 Hasp lock..... T. C. Prouty
 Hat fastener..... E. Schadel, Jr.
 Hat fastener..... H. G. Taylor
 Hay baler condenser..... F. A. Ryther
 Hay rake..... H. J. Fisher
 Hay stacker..... J. Jorgensen
 Hay, straw, &c. Machinery for pressing..... T. J. Corning
 Head motion..... H. D. McLeod
 Heating composition..... M. Bamberger et al
 Heating furnace..... F. Kernan
 Hide or leather working machine..... F. J. Perkins
 Hides preparatory to tanning. Apparatus for treating..... J. W. Deckert
 Hinge. Floor..... W. M. Potter
 Hoe attachment..... S. J. Garner
 Hoisting apparatus..... J. W. & B. Haley
 Hoisting jack..... F. H. Roewe
 Hoisting machine..... R. W. Basom
 Hoisting mechanism..... D. W. Smith
 Husking machine..... O. C. Moore
 Ice shaver..... L. Olson
 Inhaler..... A. de Trey
 Insulator. Tree..... C. W. Duntun
 Iron and steel. Compound for coating..... N. A. Bibikov
 Jewel setter. Roller..... F. Hyde
 Jewelry. Article of..... J. B. J. Chaumet
 Jigger. Dyer's..... C. Herminghaus et al
 Junction box..... T. J. Murphy
 Knitting machine..... B. T. Steber
 Knitting machine. Fashioning..... H. Janssen
 Knitting machine needles. Making..... A. B. Dodge et al
 Ladder..... F. T. Newton
 Lamp attaching implement. Incandescent..... S. O. Afsen
 Lamp burner..... C. I. Miller
 Lamp. Electric arc..... E. Viale
 Lamp. Vapor burning..... J. Heilbron
 Lantern..... A. F. Prahm
 Ladders, temporary binders, files, and the like..... G. Higginson
 Lock for loose leaf..... R. R. Norwood
 Lens..... E. A. Trapp
 Level. Plumb..... W. H. Gray
 Life preserver. Chair..... M. Kuhn et al
 Life preserver. Chair to be used as..... G. Fentrick
 Lime and lime containing substances and certain novel products of said process. Process of slaking..... C. Ellis
 Linotype machine attachment..... C. J. O'Brien
 Liquids from tin. Tap for drawing off..... J. Helleur
 Loader. Coal or ore..... W. C. Whitcomb
 Lock..... F. J. Vieweg

Lock..... C. Salviolo
 Lock..... M. F. Walck
 Lock. Hook..... E. Weit
 Locomotive tender..... C. M. Taylor
 Loom warp stop motion..... H. J. Ricketson et al
 Loom warp tension means..... H. S. Furminger
 Lubricants. Examination of..... K. Wilkens
 Lubricator..... J. R. Markle
 Lubricator..... A. R. Behnke
 Magnetic separator..... J. P. Wetherill et al
 Mail bag holder..... R. B. Rice
 Mattress. Antisore..... E. Lambotte
 Measuring instrument. Electric..... M. M. Wood
 Measuring machine..... F. J. Perkins
 Messages. Machine for coding and decoding..... J. S. Beeman
 Metal handling device..... H. Aiken
 Metal spinning apparatus..... E. Oldenbusch
 Mining apparatus..... 2 pats. R. Bagdaley
 Mixing machine..... J. B. Cross
 Mold box..... W. H. Fisher
 Molding machine..... B. F. Potter
 Mop wringer..... J. A. White
 Motor starting device. Explosion..... W. Hagspiel
 Mouth prop..... 2 pats. J. B. Besant
 Music leaf turner..... H. L. Wilson
 Music roll..... C. D. Haskins
 Needle..... S. A. Miller et al
 Nozzle. Syringe..... S. B. Shiley
 Oil applying device..... C. S. Young
 Oil cake trimming machine..... A. W. French
 Oil from wicks. Burning..... J. F. W. Jost
 Oil separator..... J. N. Sturmer
 Oiler. Axle or wheel..... S. D. Lanffer et al
 Ore separator. Magnetic..... R. R. Moffatt
 Organ pneumatic coupler..... J. Slawik
 Packing expanding device..... E. Johnson et al
 Packing. Metallic..... 2 pats. J. Badeker
 Paddle wheels. Gearing for feathering..... J. S. Hillier
 Painting machine..... D. Reym
 Paper clip..... A. S. Brooks
 Paper folding machine..... F. G. Nind et al
 Paper holder..... J. J. McNamara
 Paper holder. Roll..... J. E. Hill
 Paper. Machine for hanging wall..... L. D. Howell
 Perforating machine. Wire..... C. Andresen
 Perforating machines, &c. Contact device for electrical..... D. Stockman
 Phonograph recorder..... O. L. Hibbard
 Phonographic record..... M. Bryant
 Photograph. Colored..... L. Schill
 Piling. Metal sheet..... J. R. Wemlinger
 Pipe band fastening..... A. W. Hight
 Pipe cutting tool..... F. A. Headson
 Pipe hanger..... H. J. Robinson et al
 Pipe wrench..... G. M. Gealy
 Pipes. Device for stopping leaks in..... T. P. Fitzgerald
 Pipes, &c. Hanger for..... W. Houghton
 Piston head..... C. M. Seitz
 Planter discharge chute. Corn..... W. L. Beall
 Planter marking attachment. Corn..... J. W. Barnett et al
 Plaster compounds. Making ingredients for..... 2 pats. J. H. Hirt
 Plates, &c. Treating steel armor..... R. A. Hadfield
 Plow..... R. P. Rodgers
 Plows. Rolling shield for..... J. L. Balmer
 Pocket knife..... J. F. Connell
 Poultry roost bracket..... L. J. Davis
 Powder grain. Perforated..... H. C. Aspinwall
 Power transmission device. Electric..... H. McNulta
 Press..... F. L. White
 Pressure regulator..... E. V. Anderson
 Printing accent or letter former..... G. W. Dettner
 Pruning saw..... C. T. Holmes
 Pump..... P. H. Deis
 Pump or motor with oscillating piston..... P. Samalin
 Pump valve..... T. Giller
 Pumping apparatus. Oil well..... E. L. Gosse
 Punch. Pricking..... C. E. Traxel
 Purse and handkerchief holder. Combined..... R. K. Hohmann
 Quantity meter..... R. Schmidt
 Radiator..... J. D. Karnaghan
 Radiator disks. Die for forming..... B. Briscoe
 Rail joint..... C. B. Rush
 Railway. Elevated..... J. W. Abernethy
 Railway road beds. Apparatus for ballasting..... G. H. Cravens
 Railway switch..... J. J. Clark
 Railway switch..... J. M. Powell
 Railway switch. Overhead..... F. Schraudner
 Railway tie and heating device therefor..... C. S. Chapman
 Railway ties. Tie cap for metallic..... A. P. Bamberger
 Railway wagons and the like. Compressed air brake for..... C. Luyers
 Rake and stacker. Combined..... I. D. Schenck
 Ratchet wrench..... A. Wood
 Receptacle closure. Hermetic..... 3 pats. W. A. Lorenz
 Reducing metals and making alloys..... H. S. Blackmore
 Reel..... A. Kleinman et al
 Rifle cleaning rod..... F. E. Muzzy
 Roasting furnace..... F. E. Marcy
 Rock crusher and pulverizer..... A. Scott
 Rolling apparatus..... G. A. Lambert et al
 Rotary engine..... E. D. Misner et al
 Sanding device..... A. L. Moss
 Sash fastener..... S. F. & D. E. Myers
 Sash frame and sash..... J. G. Roseboom
 Sash frame and sash..... R. G. Holzer
 Scaffold platform..... E. Van Etten
 Screw driver..... H. Tiardoks
 Scrub brush, mop and wringer. Combined..... E. Hilker
 Seed planter and fertilizer distributor..... J. A. Bonchillon
 Seesaw. Multiple..... R. Whitcomb
 Separating pyrrhotite from chalcopryite and gangue..... T. N. Judson
 Sewing machine feeding mechanism..... W. C. Free
 Sewing machine trimmer..... V. W. Glover
 Shaft coupling..... F. J. Creque
 Shaft lining ring and tubing..... F. H. Heise
 Shafts or similar articles. Machine for turning crank..... J. T. Moltrup

Shears. Spring actuated means for increasing the tension between the blades of..... H. L. Hopkins
 Sheet feeding machine..... O. S. Beyer
 Shoe dress..... A. E. McQuiston
 Shoes. Making..... F. Engel
 Shooting apparatus. Cattle..... B. Behr
 Shovel teeth. Detachable point for power..... J. Treacy
 Showcase..... F. Weber
 Sign and actuating means therefor. Changeable..... E. O. Pohl
 Sign. Electric..... J. L. Dawes
 Signaling. Fog distance..... J. Patten
 Sledge. Cycle..... J. Baldauf
 Sleeve fastener..... M. J. Bender
 Slitting machine for cutting sheet metal can body blanks. Rotary..... F. Rudolphi
 Smoke guard support..... S. Walker
 Soot cleaner for boilers..... 2 pats. W. Eichelberger
 Soot collector and smoke purifier..... A. Zacharias
 Speed controlling and reversing mechanism..... F. A. Gerling
 Speed indicator..... A. C. Hobbs
 Spinning machine..... L. W. Gill
 Square. Bevel..... C. B. Parnell
 Stalk puller and cutter. Combined..... D. L. Palmer
 Stall bottom..... R. Newall
 Steam and water meter and motor..... A. H. Carpenter
 Steam boiler feeding apparatus..... W. J. Pickering
 Steam trap..... F. Basen
 Steering gear..... F. A. Law
 Stirrup attachment..... J. Engleheart
 Stool. Folding camp..... H. Breiding
 Storage bin..... A. E. Brown
 Store service apparatus..... C. J. Miller
 Sulfids. Separating nickel and copper..... A. Monnell
 Swimming appliance..... E. J. McKittrick
 Syringe..... G. Reimann
 T-square clamp..... K. Dougan
 Table decoration..... W. C. Codman
 Talking machine sound box..... R. L. Gibson
 Target. Aerial..... R. O. Heikes et al
 Target. Flying..... E. D. Schmitt
 Telegraphy. Multiplex system of..... G. A. Cardwell
 Telephone and other wires to insulators. Device for attaching..... E. McDaniel et al
 Telephone. Portable..... W. N. Clark
 Telephone system..... E. T. Hall
 Temperature. Producing flames of high..... K. Koppers
 Threaded parts to each other. Fixing..... E. T. Byshe
 Tilting furnace..... F. H. Treat
 Timepiece dial train..... B. H. Rhoads
 Tires and the like. Apparatus for molding rubber..... J. L. G. Dykes
 Tires. Metallic tread or resilient..... W. C. Lyon
 Toilet seat attachment..... J. V. Matteson
 Tool. Bush..... W. H. Van Sickle
 Tool. Combination..... A. C. Smith
 Tool holder..... C. W. Grant
 Tooth. Artificial..... C. Ranhe
 Toy..... L. S. Bixler
 Toy. Sounding..... M. B. Holmes
 Toy hook and ladder truck..... H. T. Kingsbury
 Toy hoop. Musical..... J. Hunter
 Tracker board..... E. de Kleist
 Tramways. Extension track or apron for overhead..... A. E. Brown
 Transmission of telephonic and telegraphic currents over the same line. Apparatus for the simultaneous..... C. Turchi
 Transom opener..... G. C. Well
 Trap..... J. Shepherd
 Trolley base..... C. E. Gierding
 Trolley harp..... E. D. Rockwell
 Trolley wheel..... G. Loffi
 Trousers stretcher..... C. S. Barrell et al
 Truck. Car..... W. P. Bettendorf
 Truck. Tongue..... 2 pats. J. W. Pridmore et al
 Truck. Transfer..... W. P. Hussey
 Tube cutter..... E. Johnson
 Turbine..... H. Wagner
 Turbine engine..... M. D. Kalbach
 Turbine. Steam..... H. Wagner
 Type setting machine..... W. G. Reynolds
 Underwaist..... I. Miller
 Universal joint..... G. W. Toney
 Universal joint..... V. & V. Lorenc
 Utensil handle..... H. G. Kuck
 Valve..... E. V. Anderson
 Valve..... E. F. Riddle
 Valve..... E. H. Schulze
 Valve. Automatic relief..... L. A. Rabourn
 Valve. Balanced slide..... J. B. Allfree
 Valve gear. Explosive engine..... E. R. Uhlin
 Vault. Grave..... M. J. Faivre
 Vehicle spring wheel..... D. C. Master
 Vehicle wheel..... A. Cousen
 Vehicle wheel..... G. A. Schoebe
 Vehicle wheel..... J. M. Ledford
 Vehicles. Body and gear supporting frame for pedaled..... G. H. Barschow
 Veneer machine..... 2 pats. E. F. Smith
 Ventilator..... J. Lorenz
 Ventilator..... S. L. Morse
 Vise..... B. Newman
 Vise. Bench..... C. Hanimann
 Voting machine..... A. A. Farwell
 Wagon. Dump..... H. S. Hoy
 Washing machine..... C. E. Miller
 Washing machine gearing..... W. Nahrwolf
 Watch fob safety attachment..... A. G. Doane
 Watch protector..... J. Middlebrook
 Water. Apparatus for purifying..... R. T. Weaver
 Water closet. Sanitary..... F. P. Sheridan
 Water cooler and refrigerator..... J. W. Brown
 Water gate..... G. Kellar et al
 Water meter..... N. P. Fenner, Jr.
 Water motor..... J. C. Howard
 Water tube boiler..... C. H. Smith
 Wax. Artificial..... J. Lewy
 Way or track..... P. B. Sullivan
 Weighing machine..... G. H. Denison
 Well device. Oil..... C. E. Downs
 Well strainer..... G. B. Kiser
 Wind shield..... I. Eysseric
 Wind wheel..... M. J. Miller et al
 Windmill..... B. R. Harrington
 Winding machines. Controlling means for..... S. W. Wardwell

Window draft stop..... E. A. Veller
 Window sash. Sheet metal..... E. G. Budd
 Window screen..... C. W. Allen
 Window screen..... F. Folden
 Window screen. Metal..... H. W. & W. W. Watson
 Wire drawing machine..... J. H. O'Donnell
 Wire or rod cutter..... T. D. Milne
 Wire stretcher..... F. W. Bost et al
 Wire stretcher and splicer..... H. F. Bonesteel
 Wires, &c. Moisture proof case-covering for the terminals of lead armored insulated..... C. E. Teush et al
 Wood. Preserving..... W. E. Everette
 Woodworking machine..... W. S. Meilen
 Wrench..... H. B. Schiller
 Wrench..... W. P. O'Brien
 Wrench..... J. R. Patty

Issued October 24, 1905.

MECHANICAL PATENTS.

Accumulator. Steam regenerative..... L. P. L. Battu
 Alarm system..... J. M. Latimer
 Animal tether..... J. L. Schaaff
 Animal trap..... J. M. Harris
 Article holder..... J. Sendebach
 Auger brace..... Z. Scott
 Autographic register..... W. G. Pilkinton
 Automobile headlight holder..... J. L. De Good
 Automobile horn and means for operating the same..... C. H. Foster
 Baling press..... W. M. Rheem
 Baling press..... G. W. Pearson
 Barrel cover..... D. S. Pierce
 Bearing. Antifriction..... H. C. Burnett
 Bearing for subaqueous and other shafts..... J. H. Gray
 Beater..... E. T. Farmer
 Bed. Convertible sofa..... W. T. Rolph
 Bed spring..... W. H. Sleight
 Bed spring..... T. C. Carey
 Bedstead..... C. L. Tuttle
 Bedstead attachment..... H. E. Henwood
 Bell. Electric..... C. E. Avery
 Bell or gong..... 2 pats. J. L. Feeney
 Bell ringer. Electric..... I. W. Hall
 Bell ringing apparatus..... F. Wenle
 Belt. Apparel..... H. J. Gaisman
 Belt loop or frame..... H. J. Gaisman
 Bicycle..... H. Ingham et al
 Binder. Temporary..... G. H. Moore
 Binder. Temporary..... W. S. Mendenhall
 Boat. Automobile..... E. Fournier
 Bodies, or balls. Machine for making spherical..... M. F. Christensen
 Boiler..... L. Rowan
 Bolster. Spring..... W. J. Foister
 Bolding machine..... T. W. Graham
 Book. Check..... C. E. Slane et al
 Boots and shoes. Means for use in measuring and fitting..... W. M. Halbach
 Bottle..... G. T. Liddle
 Bottle. Gaged sample..... B. S. Hawley
 Bottle. Non refillable..... L. Holman
 Bottle stoppers. Metal cap for E. M. Gilmore..... J. A. Aue
 Braiding machine..... J. Kappeler
 Brake head..... G. A. Woodman
 Brake rigging..... W. F. Kiesel Jr.
 Brick. Building..... C. A. Harris
 Bricks or blocks. Manufacture of lime and sand..... E. Stoffer
 Bristle cementing machine..... J. Schreiner
 Brooder..... J. H. Huff
 Brush. Fountain..... W. L. Chrysler et al
 Bucket attachment. Paint..... W. Hetherington
 Buckle. Cross line..... F. Ringhausen
 Buckle. Cross line..... C. Stack
 Building block..... G. L. Peabody
 Building block and wall construction..... Z. Anderson
 Building blocks. Molding machine for making..... W. E. Dunn
 Bunsen burner attachment..... E. R. Kelly
 Butter cutter and measurer..... G. Ericson
 Butter molding machine..... T. Le Beau
 Button..... C. H. Schott
 Button. Removable self-fastening..... O. C. Schulz
 Caloric engine heater..... I. W. Ammon
 Camphor. Making..... 2 pats. L. Ach
 Can cover fastener..... C. E. Bertels
 Can filling machine..... A. Cerruti
 Caponizer..... D. D. Shirley
 Car..... T. H. Proske
 Car body for wrecking cranes..... S. L. G. Knox
 Car coupling..... G. A. Hermanson
 Car. Dumping..... R. H. Stevens
 Car seat..... R. D. Long
 Cars. Coupling centering device and carry iron for railway..... J. R. Mitchell
 Cars. Draft rigging for freight..... M. Kennedy
 Cars. Draft rigging for railway passenger..... J. R. Mitchell
 Cars. End bracing for box..... G. L. Henrion et al
 Carpenter's jack..... P. J. McCulley
 Cash register, change-maker, change-deliverer, and purchase check discharging machine. Combined..... E. H. Spear
 Casting box..... E. Hall
 Cement clinker. Apparatus for burning Portland..... T. A. Edison
 Centrifugal separator..... W. H. Peck
 Chain links. Mechanical manufacture of..... J. Giriot
 Change making and cash ejecting mechanism..... E. H. Spear
 Cheese cutter..... C. F. Fogg
 Churn..... F. B. McKenney
 Circuit controller or electric switch..... J. P. Coleman
 Circuit controlling device..... H. T. Johnson
 Clock..... H. Burmeister
 Cloth cutter..... C. Schneider
 Cloth measuring device..... E. L. Clark
 Cloth splitting machine..... J. F. Ames
 Clutch mechanism..... J. Harding, Jr.
 Coating machine..... L. C. Steele
 Coating machine..... A. J. Ford
 Coil. Heat..... F. B. Cook
 Coin counting, registering and bagging machine..... C. S. Batdorf
 Coin handling machine..... C. S. Batdorf

Coin handling machine.....C. S. Batdorf et al	Hame fixture.....L. Rutledge	Pedal. Folding.....J. Hattermer	Spraying apparatus.....W. G. Hall
Collapsible box.....C. C. Crompton	Hammer. Automatic magazine nail and tack.....F. J. Hammes et al	Pen. Fountain.....J. H. Taylor	Spring support.....A. E. Beall
Comb.....W. C. Fowler et al	Hammers. Cushion tool holder for pneumatic.....S. W. Goodhne	Piano back. Metallic.....J. F. Huer	Stairway. Fireproof.....F. O. Hanson
Combination lock.....R. C. Fulton	Harness.....R. C. Becher	Pianos. Front fall for upright.....C. Hermanson	Stalk cutter.....S. Wilburn
Composition of matter for packing, lining and insulating purposes.....F. M. Ekert	Harness saddle.....T. I. Moorish	Pictures, &c. Support for.....W. H. Olmstead	Steam boiler.....J. P. Karr
Concentrator. Centrifugal.....P. H. Adams	Harrow Rotary.....B. F. Powers et al	Pigments. Manufacture of printing ink.....P. Fireman	Steam trap.....C. W. Martin
Concrete structures. Apparatus for molding.....C. Steiler	Harvester reel.....C. S. Sharp	Pin for brake rod jaws or the like.....A. Lipschutz	Steam trap.....E. J. Ryan
Condenser. Ammonia gas.....A. H. Raer	Harvester reel driving mechanism.....J. A. Sharp	Pipe connection.....R. Raire	Step. Safety tread.....C. J. Marius
Conveying apparatus.....A. & J. M. Hall	Hat pin.....A. E. Bradley	Plating machine.....A. Kislik et al	Stone. Composition for artificial.....J. F. Wyher
Cooking or culinary vessel.....L. J. Ellis	Hay, cotton, &c. Tying device for bales of.....G. A. Lowry	Planter. Seed.....A. S. Reymier	Strainer.....P. Evans
Copy and paper holder for writing.....F. G. Anderson	Hay press.....J. E. Sanders	Plate holder for locomotive headlights, etc. Signal.....H. S. Teal	Surfacer frame. Pneumatic.....H. G. Kotten
Corset. Apparel.....D. Kops	Headlight. Dash electric.....T. Millen	Plate. Non removable holding.....E. A. Parker	Surfacing and polishing machine.....2 pats. A. T. Spence et al
Cot or bed. Folding.....A. Gusdorf	Heating apartments, &c.....H. C. Mallory	Plows. Crown dirt shield for.....I. A. Hockenbery	Surgical dressings, instruments, &c Sterilizer for.....S. G. Scanlan
Cotton planter and fertilizer distributor.....H. D. Wilson	Heliographic plate and making the same.....J. H. Powrie	Polarity indicator.....F. W. Manger et al	Suspension carrier. Elevated.....H. G. Ryder et al
Crushing machine.....A. Cameron	Hinge. Double acting spring.....G. Hochstrasser	Polishing machine. Strap.....W. C. Lawrence	Sweeping machine. Street.....C. W. Collyer
Culinary utensil.....T. Tierney	Hitching device.....J. D. Jamieson	Potato cutter. Seed.....B. H. Pugh	Swivel connection.....A. Uren
Curb.....J. F. McCoy	Hog ringer.....F. E. & C. O. Mohns	Potato digger.....A. Gagnon	Tap wrench.....A. J. Smart
Current motor.....F. B. Marvin	Hoisting device.....H. J. Schmick	Pressure regulator.....J. D. Moffett	Telegaphy. Space.....6 pats. J. S. Stone
Curtain rings. Making.....A. L. Parker	Hoisting engine.....R. Bowles	Propeller. Boat.....H. S. Searle	Telegaphy. Space.....10 pats. J. S. Stone
Dashboard holder.....J. W. Yochem	Hook.....C. B. Lau	Propeller mechanism. Boat.....J. H. Nyenhuis	Telephone cut out and switch.....O. M. Galloway et al
Dehorner. Cattle.....C. E. Binnings	Hose carriage.....H. B. Cary	Protractor.....A. Anderson	Telephone desk set.....W. Kaisting
Dental appliance.....B. G. Simmons	Hose coupling.....C. W. Martin	Pulley. Composite.....W. W. Whitcomb	Telephone directory holder.....L. S. Johnson
Dental swage.....J. R. Comins	Hose coupling.....H. Garner et al	Pump. Automatic cycle.....P. J. McGinn	Telephone exchange system.....H. G. Webster
Dentistry. Cervix clamp for use in.....W. A. Rowe	Hose supporter.....J. E. Ehrlich	Pump. Container.....W. Polack	Telephone transmitter attachment.....L. St. J. Johnson
Desk attachment.....F. A. Creed	Hydraulic air compressor.....W. J. Linton	Pump. Drainage.....H. H. Swan	Thermostat.....F. W. Robertshaw
Detector bar.....J. T. Hambay	Ice cream mold.....J. D. Kinzer	Pump. Self governing centrifugal.....E. P. McMurtry	Tie and rail fastener. Metallic.....B. A. Legg
Die hammering machine.....J. A. Horton	Illuminating apparatus.....P. E. Collins	Pumps. Automatic control for supply.....C. Pfisterer	Tire and rail fastening therefor. Cement.....J. G. Archibald
Dimension gage.....F. Martin	Induction motor device.....D. C. Jackson	Punch.....W. J. Pfannerstill	Tiles for roofing and the like. Making.....H. D. Christensen
Directory. Telephone.....P. C. Murphy	Insulators. Retaining clip for third rail.....W. Courtenay	Puzzle.....A. Wright	Tire.....D. R. & O. D. Salisbury
Display holder for handkerchiefs, &c.....G. W. Ebright	Interlocking mechanism.....F. Keiper	Quartz mill.....R. A. Vaughn	Tire. Elastic.....A. A. Gilles
Door controller.....W. G. Bell	Jars and like vessels. Closure device for.....W. B. Fenn	Rail bond.....G. A. Mead et al	Tire. Elastic.....W. Alexander et al
Door. Fire.....A. C. Preble	Jars and other vessels. Closure device for glass.....W. B. Fenn	Rail joint.....H. H. Green	Tire fastener.....T. Midgley
Dough divider.....F. H. Van Houten	Jars, cans, and the like. Closing device for glass.....W. B. Fenn	Rail. Protected.....L. Steinberger	Tire heater.....C. O'Connor et al
Dough divider.....D. J. Hanna	Journal box lid.....J. W. Stephenson	Rails. Adjustable spacing device for guard.....C. C. Rutter	Tire inflating means.....G. A. Bobrick
Draft rigging. Draw bar centering device for railway.....J. F. O'Connor	Keg or vessel.....A. J. Moxham	Railway appliance.....W. I. F. Harden	Tire protector. Pneumatic.....P. O. Casavant
Drawing and evening machine.....S. Birch	Knitting machine.....F. La Rock	Railway car door.....M. G. Nicholson	Tire wheel.....H. G. Fiske
Drilling bit socket.....J. S. Lime	Labeling device.....A. Rosenberger	Railway crossing.....J. S. Jenckes, Jr	Tobacco for the removal of nicotine. Treatment of.....K. Wimmer
Drilling mechanism.....J. A. Scott	Lamp.....W. D. Boyco	Railway electric signal.....F. H. Gray	Toggle holder. Metallic.....C. R. Pidcock
Driving bit.....G. T. Duncan, Sr	Lamp chimney attachment.....H. V. Blucher	Railway signal. Electric.....2 pats. E. M. McGuire	Toilet article.....R. R. Debacher
Driving device. Reversible.....H. N. Covell et al	Lamp for chafing dishes, &c. Alcohol.....G. E. Savage et al	Railway signal operating mechanism.....F. P. J. Patenall	Tongs.....R. E. White et al
Driving mechanism.....M. B. Hall	Lamps. Safety device for oil.....E. F. Keyes	Railway signal system.....E. W. Stiff et al	Tool.....A. J. Eddins et al
Dust collector.....G. T. Meador	Lantern.....J. Doering	Railway track construction.....C. E. Clement	Tool. Calcimining.....C. E. Weidner
Dust pan.....W. T. Neader	Lath construction. Metal.....A. S. Alschuler	Railways. Control of apparatus governing the passage of cars along.....W. A. Bartley	Tool. Expansion boring.....E. E. Davis
Educational appliance.....J. H. Fitch	Lathe.....W. G. Bixby	Railways. Switch operating device for street.....R. M. & J. M. Van Eaton	Tool handle. Detachable.....F. W. McCune et al
Egg case.....F. A. Purchas	Leather shaving machines. Grinder for.....J. Rood	Reaming attachment for pipe cutters.....J. E. Hunter et al	Tool. Percussion.....J. T. Nicholson
Electric interrupter or vibrator.....J. E. Seeley	Ledger. Self indexing.....H. H. Herrick	Rein holder.....O. B. Read	Torpedoes. Track fastener for fibrous railway.....F. Dutcher
Electric lock.....N. W. Webb	Lifting and transporting invalids. Apparatus for.....W. Amos	Rivet cutter.....W. H. Lande	Transferring device. Carrier.....A. C. S. Rue
Electric machine. Magneto dynamo.....E. B. Cutten	Lifting apparatus. Ship.....K. Lohle et al	Road grading machine.....R. E. & J. D. Adams	Trestle.....W. Upthegrove
Electric motor.....D. C. Jackson	Lifting jack.....P. R. Parks et al	Roll. Grinding.....G. B. Nutt	Trolley for electric cars.....G. F. Warburton
Electric protective apparatus. Ground plate for.....F. R. Parker	Locomotive engines and tenders. Coupling for.....G. W. Rittersbach	Roofing.....J. H. Munro	Trousers creaser.....T. J. Howlett
Electric telegraph transmission tapes. Electromagnetic perforator for perforating.....P. B. Delany	Locomotive headlights. Acetylene generator for.....G. H. Emerson et al	Rotary engine.....J. H. Gamble	Trussed board or support.....J. J. Dennis
Electric wire conduit.....R. W. Lyle	Loom harness motion.....C. F. Roper	Rotary engine.....W. N. Mears	Tubing and producing same. Ornaments.....C. J. Dolan et al
Electric wire insulator.....C. A. Humphrey	Loom jacquard mechanism.....G. Gaylor	Rotary engine.....N. R. Smith	Turbine.....H. Rurrill
Electrical apparatus.....J. E. Seeley	Loom temple.....W. Lupton	Rotary engine.....C. M. Cornelison et al	Turbine. Elastic fluid.....H. Taber
Electrical distribution. System of.....J. H. Anderton	Loom. Loading device for rotary hoppers of filling replenishing.....A. E. Stafford	Rotary engine.....F. Egersdorfer	Turbine. Steam.....A. Johnson
Electrolytic apparatus.....F. J. Briggs	Looms. Means for loading hoppers of filling replenishing.....E. S. Stimpson	Rubber dam sheeting.....W. F. E. Schrader	Turbine wheel having removable paddles.....H. Lentz
Elevator safety device.....C. W. Hoffman	Lubricator.....W. J. Taylor	Sad iron. Gas.....G. W. Huber	Two latch lock with safety catch.....W. Dickel
Embroidery Imitation.....N. Noel	Lubricator.....D. Morehouse	Safe or receptacle. Milk bottle.....E. M. Peacock	Type writer copy holder.....W. H. Stevens
Engines.....C. Fero, Sr	Mail chute.....E. F. Naulty	Safety brake pawl.....A. X. Kennedy	Type writing machine.....G. C. Blickensderfer
Engines. Liquid circulating apparatus for.....J. F. McCanna	Manure fork.....G. Wettlauffer	Sage brush. Machine for grubbing.....A. L. Dunavan	Umbrella.....J. V. Sybrandt
Envelops. Device for opening.....H. Brischner	Manure spreader.....R. H. McNair	Salt of ferric chlorid and cotarnin hydrochlorate and making same. Double.....A. Voswinkel	Valve.....W. B. M. Bashlin
Excavator.....W. Ferris	Mask. Base ball.....E. J. Goldsmith	Sanitary frog basket.....E. R. Neuenfeldt	Valve.....C. E. Huxley
Exoander. Ring.....A. M. Remington	Material. Manufacturing a filling.....J. D. Pennock	Sash cord fastener.....T. H. Kingston	Valve and brake. Throttle.....N. W. Fletcher
Explosion engine.....R. H. Scott	Materials. Apparatus for quick drying pastry and liquid.....A. Hullard	Sash fastener. Automatic.....E. A. Parker	Valve controlling system. Electromagnetic.....2 pats. I. G. Waterman
Farm gate.....A. J. Story	Materials. Machine for molding plastic.....G. Stewart	Sash lock.....W. A. Douglas	Valve. Electrical mixing.....I. G. Waterman
Fastener for trunks, &c. Spring.....E. W. Hawley	Materials. Treating solid.....K. Birkeland et al	Saw. Horizontal band.....C. C. Stuart	Valve. Electromagnetic.....10 pats. I. G. Waterman
Faucet and measurer. Combined.....J. E. Warlick	Mattress and cushion. Pneumatic.....W. M. Russell, Jr	Saw set.....C. W. Gray	Valve. Fusible plug cut off.....E. S. Beatty
Felly.....C. B. Van Horn	Measuring device. Foot.....W. J. Goobdar	Saw set.....J. Endresen	Valve. Mechanical push button.....2 pats. I. G. Waterman
File.....L. C. McNeal	Measuring instrument designed to ascertain the depth of recesses or cavities formed in solid bodies.....M. Picard	Saw sharpening machine.....J. H. Seek	Valve mechanism.....C. P. Reibold
File. Cabinet.....M. R. Stapp	Measuring the flow of liquids. Apparatus for.....J. S. Yabsley et al	Saw swage.....T. Walker	Valve regulator for centrifugal machines.....H. de Raasloff
File holder.....A. Henry	Meat tenderer.....D. B. Date	Scaffold or seat. Window.....J. E. Gagnon	Valve. Steam pressure reducing.....G. W. Collin
Film frames. Clamp for printing.....B. Day	Meat tendering machine.....J. D. Atkinson	Scraper.....I. W. Every	Vehicle balance adjuster.....P. J. McGinn
Filter.....H. H. Colestock	Metal objects without oxidation. Furnace for the continuous heating of.....C. Kugel	Scraper holder or locking device.....J. M. Van Loon	Vehicle. Motor.....J. A. Carr
Filter.....W. B. Smith	Metal piercing apparatus.....F. M. Peters	Screw cutting die.....J. J. Mullaney	Vehicle roller chafe iron.....H. Higgins
Fire alarm system. Automatic.....G. B. Bowell	Millstone.....J. D. Houck	Sealing cap for vessels.....J. M. Hicks	Vehicle. Self propelled.....E. R. Gill
Fire extinguishing apparatus. Chemical.....J. T. Obenchain	Mineral washing and separating apparatus.....J. H. Lancaster	Sealing jar for preserving various articles, such as food, &c.....C. C. Hovey	Vehicle spring.....A. Herz
Fire protection signal system.....J. G. Nolen et al	Miner's candlestick.....T. W. Conklin	Sealing machine. Envelop.....S. M. Friede	Vehicle top.....W. Linsay
Firearm. Automatic.....B. Muller	Miner's pick.....F. N. Wilson	Seasickness. Device for preventing.....W. Schmidt	Vehicle wheel.....C. E. Huxley
Firearm. Breech loading.....G. Ellstrom	Mirror support. Adjustable.....J. L. Larson	Self lubricating wheel.....J. K. Lightfoot	Vehicles, &c. Manufacture of.....J. Spyker
Fire protection signal system.....J. G. Nolen et al	Moistening device.....J. Speir	Sewage system ventilation.....E. V. Koch	Vehicles. Steering gear for children's pedal.....G. H. Barschow
Firearm. Automatic.....B. Muller	Molding apparatus.....C. P. Lancaster	Sewing and trimming mechanism.....F. Wever et al	Vending machine.....W. P. MacArthur
Fireproof construction.....T. F. Odell	Moving platform or inclined plane.....J. M. Dodge	Sewing machine attachment.....J. M. Greist	Veneers. Cutting.....P. H. York
Fireproof partition.....C. M. Depew et al	Mower. Lawn.....C. Lomborg et al	Sewing machine feeding mechanism.....R. G. Woodward	Ventilating device for builders.....F. V. Matton
Fish hook.....T. Evans	Mowing machine.....A. Grievies	Sewing machine looper mechanism.....L. Onderdonk	Ventilating malt house compartments.....R. A. Kirkpatrick
Fishing machine.....W. Enright	Mush manufacture.....C. W. Jackson et al	Sewing machine ruffler.....3 pats. J. M. Greist	Vises. Bolt heading attachment for.....T. A. Cook
Fleshing machine.....F. J. Perkins	Music leaf turner.....M. A. Zielinski et al	Sewing machine trimming device.....R. G. Woodward	Voting machine.....A. J. Gillespie
Floors. Device for the rapid laying and automatic tightening of.....A. Van Den Bulcke	Necktie and collar fastener. Combined.....H. Hellweg	Sewing machines. Trimming device for overseaming.....L. Onderdonk	Wagon box attachment.....R. L. Rhea
Flower pot.....A. Marshall	Negatives. Preparing autotype.....C. Richter	Shaft bearing stands and the like. Rase plate for.....H. W. Hill	Wagon. Dump.....O. E. Moats
Fluid motor valve.....T. D. Dunlap	Nut clipper.....J. Pulvitt	Shaft support and holdback. Combined.....R. O. Wilcox	Wagon. Dumping.....B. Kern Jr
Fluxing machine.....A. Cerruti	Nut lock.....J. T. Boyet	Sharpening device.....F. A. Gennung	Wardrobe. Folding.....F. & D. Van Nostrand
Formaldehyde generator.....W. E. Ramsay	Nut locking device for vehicles.....A. L. Renwick	Shear gage.....T. Stevenson	Washing machine.....J. M. Gagan
Frut quartering machine.....J. Goosen, Jr	Nut making machine.....A. D. Ray	Shingle machine.....A. Z. Bodreanx	Watch. Game.....W. E. Porter et al
Fuel. Manufacturing artificial.....J. Knops	Ore concentrator actuating mechanism.....E. Deister	Ships or vessel. Freight carrying.....G. E. Holland et al	Watchcase hinge.....L. S. Hanson
Furniture brace.....G. W. Nail	Ore separator. Centrifugal.....2 pats. P. H. Adams	Shirts. Means for propelling.....J. C. Kunst	Watchmaker's tool.....C. Arthur
Fuse board. Plug.....W. F. Bossert	Ore separator. Centrifugal.....3 pats. W. H. Peck	Shoe polishing machine.....P. Weinholt	Water closet bowls. Automatically operated flushing system for.....I. G. Waterman
Fuse. Electric.....F. B. Cook	Ornamentation. Transfer.....W. Wachter	Sign.....C. H. Kettles	Water current motor.....H. H. Granger
Gallows.....G. E. Davis	Oxids and the separation of the resulting metals. Reduction of metallic.....A. I. Rossi	Signaling apparatus. Selective.....E. A. Reynolds	Water meter attachment.....H. B. Van Order
Game apparatus.....J. M. Babbitt et al	Oxids. Reducing metallic.....T. S. Blair, Jr	Signaling. Spark determining apparatus for wireless.....L. de Forest	Waterproof compounds.....M. Toch
Gas generator. Acetylene.....M. Thayer et al	Packing ring for stuffing boxes. Metallic.....G. Huber	Silo.....W. L. Haag	Web drying apparatus.....W. S. Bellows
Gas producer.....J. R. George	Pail. Milk.....F. St. Thomas	Soldering implement.....B. E. Williams	Weed cutter.....2 pats. A. N. Carlson
Gas system safety device.....G. H. Emerson et al	Paper cutter.....J. F. King	Sole and welt.....E. A. Burke	Well drilling machine.....W. R. Martin
Gems. Grinding or polishing.....C. Coleman	Paper holder and cutter. Roll.....J. F. Finan	Speed changing device.....H. Baerbalck	Well drilling machinery.....M. McCain
Girder carrier.....C. L. Ketcham	Paper separator.....H. W. Brintnall	Speed regulator for explosion engines.....G. A. West	Wheel.....C. B. Van Horn
Glass cutting table.....J. G. Green	Paper trimmer.....C. R. Weber	Spinning machinery. Collar board for mules in.....H. F. Palmer	Wheel jack.....J. H. Jones
Glass. Field.....A. J. Lloyd	Hame fastener.....W. F. Brier	Spirit level attachment.....A. J. Perks	Windmill.....E. G. Abbey
Golf. Device for use in playing the game of.....W. C. Camp			Windmills. Device for changing stroke adjustment of.....F. S. Laffin
Grader. Road.....N. G. & J. A. Robinson et al			Window cleaner.....E. A. Veller
Grate basket. Adjustable.....P. S. Poindexter			Window frame. Fire resisting sheet metal.....T. Lee
Grinding and polishing wheel.....A. W. Thomas			Window lock.....J. J. Gier
Grinding apparatus.....W. & G. P. Connor			Window screen.....D. V. C. Foote
Grinding machine.....F. Bex			Window screen.....D. Z. Shaw
Grinding mill.....J. Rakowski			Window screen.....C. G. Woods
Grindstone fixture.....C. H. Foster			
Ground strip for protective apparatus.....F. B. Cook			
Guard. Dust.....J. W. Stephenson			
Guns. Apparatus for setting the sights of.....G. Forbes			
Guns. Cartridge carrier for bottom loading.....T. C. Johnson			

Window shade holder J. R. Hamer
Wire coiling machine..... G. H. Scott et al
Wire drawing. Steel..... J. A. Horton
Wire stretcher..... W. R. Van
Wire stretcher..... B. S. Manning
Wood. Preservation of..... W. B. Chisolm
Wood. Preserving and waterproofing.....
..... J. A. Deghene
Wood pulp. Apparatus for treating W. A. Hall
Wood pulp. Treating..... W. A. Hall
Wood to extract turpentine and rosin there-
from. Treating..... J. W. Piver
Woven fabric..... H. Sarafin
Wrench..... E. J. Moon
Yarn printing machine..... W. K. Hawk

DESIGNS.

Bank. Transportable..... S. Hubig
Belt and skirt support..... M. B. Johnson
Bottle..... R. K. Heyman
Bottle..... W. M. Sommer
Box and ash tray. Cigarette..... S. F. Ellis
Boxes or similar articles. Cover for.....
..... T. W. Foster
Clock case..... C. H. Barnes
Clock case..... 3 pats..... A. W. Owen et al
Clock case..... W. E. McGraw
Croustade..... F. Beaumont
Curtain..... A. Silcox
Exhibiting stand. Color..... W. H. Reese
Fabric. Printed textile..... 2 pats.....
..... E. B. Vandergaw
Gems. Setting for..... J. Wodiska
Lamps. Ceiling fixture for electric.....
..... 2 pats..... J. H. Goehst
Medallion..... G. L. Price
Piano case..... 2 pats..... J. H. Sandlas
Pocket piece..... J. H. Gault
Powder receptacle. Toilet..... W. A. Bradley
Type. Font of..... W. A. Schraubstadter

Issued October 31, 1905.

MECHANICAL PATENTS.

Accumulator..... R. W. Wilson
Acid, &c. Making oxalic..... F. A. Feldkamp
Adjustable stroke mechanism. Parallel.....
..... E. S. Clark
Advertising device..... M. S. Alexander
Advertising device..... G. G. Allen
Amalgamator..... H. J. Hortsmann
Amusement device..... W. H. Logan
Amusement device..... S. Koppel
Amusement device..... W. F. Bernheisel
Annunciator..... C. W. Lebeis
Armature coils. Apparatus for short circuit-
ing turns in..... J. F. Shoemaker
Atomizer or nebulizer..... O. C. Knight
Auger. Expansion..... T. F. Gaynor
Automobile rear axle..... F. C. Miller
Ax rack and locker..... C. A. Swanson
Axle..... R. Mulholland
Axle box lid. Car..... W. G. Dunham
Baby jumper..... E. M. Monroe
Baggage..... S. Christie
Bale tie machine..... J. W. Miller
Baling press..... S. P. Northcutt
Band saws. Machine for setting.....
..... J. C. Reckweg
Bank. Combination coin..... F. Smith
Bank or other box..... G. R. Hill
Bearing. Elastic collar..... D. W. Jordan
Bearing. Gravity roller side..... J. F. O'Connor
Bed spring..... J. James
Bed spring tightener..... G. S. Willett
Beds. Appliance for surgical..... E. H. Richards
Bedstead..... A. H. Davis
Belt splicing implement..... J. & P. B. Landraf
Bicycles, wheels, and the like. Stand for hold-
ing..... A. Shearman
Billiard cue tip..... F. E. Joselin
Billiard cue tip holder..... H. J. Koegel
Bin..... J. Minchin
Blotters, &c. Support for..... A. Webster
Boat..... J. F. Conkling
Book and paper holder..... D. Weaver
Book. Memorandum, order, diary, account,
sample or similar..... E. M. Goldsmith
Books, pamphlets pads, &c. Applying strips
to..... J. H. Cummings
Boot cleaner..... R. T. Cummings
Bore sight..... G. N. Saegmuller
Boring tool..... C. Smith
Bottle closure..... E. C. Fowke
Bottle corking machine..... J. B. Davis
Bottle washing machine..... F. N. Young
Box fastener..... L. M. Gilchrist
Brake beam and making the same..... J. F. Streib
Brake shoe holder..... E. Wilson
Bread to crumbs. Appliance for reducing.....
..... E. F. B. Kenyon
Brooder..... W. A. Sumner
Bucket. Clam shell..... J. Lindstrom
Building block..... J. Wickre
Building block and wall construction.....
..... O. Johnson
Building purposes. Hanger for.....
..... C. H. Bigelow Jr.
Bumping post..... J. M. Scott
Bunsen burner..... A. Rector
Cabinet. Delivery..... F. J. Dole
Caloric kiln..... E. A. King
Cane, camp stool and umbrella. Combined.....
..... M. H. McNamara
Capsules. Machine for removing and putting
on the tops of..... B. T. Winchester
Car brake..... W. Balke
Car construction..... J. F. Streib
Car coupling..... G. W. Power
Car coupling..... G. C. Harlin
Car frame..... 2 pats..... E. I. Dodds
Car grain door..... L. Casteel
Car part..... E. I. Dodds
Car stake..... J. E. Flynn
Car wheels. Making..... C. T. Schoen
Cars. Flush drop door for..... C. A. Lindstrom
Cars. Sill for metal..... E. I. Dodds
Cart jogging..... M. Baker
Cartridge belt. Woven..... W. C. Fisher
Casing spear..... J. Stegner
Caster. Furniture..... W. Seavill
Caster retainer..... D. A. Maccaig
Cement, &c. Furnace for burning G. Grondal
Cement receptacles. Mold for forming.....
..... O. Staley
Center bit..... G. Burki

Chain link coiling machine..... J. Raffler
Chair foot rest..... W. L. Hoffman
Chair iron..... H. W. Bolens
Check protector..... J. H. Miller
Checkrein holder..... E. Pyle
Chimney cowl..... B. A. Warlick
Chimneys. Safety device for headlight.....
..... H. A. Barnum et al
Churn..... W. A. Carpenter
Churn and butter worker. Combined.....
..... T. L. Valerius
Chute. Coal..... C. W. Hunt
Circuit breaker counter..... E. M. Hewlett
Cistern..... E. & C. Laenger
Class register..... J. S. Price
Clip..... C. A. Hermann
Clothes line reel..... G. F. Keating
Clutch mechanism. Wheel and axle..... J. R. Steitz
Coal screen..... H. Dugan
Coal washing apparatus..... R. Dick
Coaster hub for cycles. Two speed.....
..... R. W. Smith
Cock handle. Stop..... D. Inches et al
Coffee drier..... D. Gordon
Coin delivering machine..... E. G. Johanson
Coin holder..... T. C. Butler
Coin button and necktie holder..... J. C. Baker
Collar. Horse..... J. S. Hull
Combination lock..... J. E. Lemyre
Composing stick..... R. D. Tittle
Communion cup. Sanitary..... O. V. L. Harbour
Condenser. Gas..... J. S. De Hart, Jr.
Condenser. Surface..... F. S. Farnsworth
Conductors. Suspension device for trolley.....
..... H. P. Davis et al
Confectionery machine..... J. C. Palmer
Confectionery. Machine for making.....
..... P. Knorpp
Connector for electric conductors. Terminal.....
..... J. H. & A. T. Kliegl
Control regulator. Remote..... J. L. Hall et al
Control system. Electric..... H. D. James
Controller..... reissue..... J. P. Durkin
Conveyer..... T. Cox
Cooking utensil receptacle..... B. W. Sturdevant et al
Cooling jackets of steam and indicating the
circulation of water therethrough. Means
for relieving..... J. E. Miller
Cotter pins. Machine for making..... F. D. Coppage
Crate. Collapsible..... A. Johnson
Crate. Shipping..... I. L. Stripe
Crops. Apparatus for growing..... W. N. Priaulx et al
Cultivator..... T. H. Cope
Cultivator and planter. Combined..... H. T. Monson
Curb..... F. B. Berrien
Current motor control. Alternating..... C. E. Barry
Current system of control. Alternating.....
..... F. Conrad
Currycomb..... M. Alston
Current pole socket..... J. Kroder
Cutterhead..... J. W. Ward et al
Delineating character or disposition of any in-
dividual according to the character of the
hand. Apparatus for..... H. N. Marvin
Dental applicator..... 2 pats..... J. W. Dennis
Dental instrument..... A. P. Johnstone
Dentist's cervical clamp..... L. H. Babcock
Dip net and fishing rod case. Combined.....
..... E. K. Brennaun
Dish washing apparatus..... N. G. De Laney
Dish washing machine..... W. I. McCausland
Disk drill..... W. J. Browne
Display cabinet..... G. F. Conley
Display rack..... J. N. Deaver
Display stand for headwear..... O. Pfeiffer
Distilling apparatus..... N. Bogolavensky et al
Docket..... F. Wendler et al
Domestic boiler..... E. M. Mouser
Door hanger..... C. W. Tomkinson
Door securer and burglar alarm..... T. M. Eneyart
Dovetail cutter..... J. Laskowitz
Draft and buffing rigging..... R. D. Gallagher Jr.
Draft regulator. Automatic..... A. J. Kaminsky
Drawer case. Tilting..... C. G. Schmidt
Drenching bit..... J. Hineman
Dressing. Clavicle..... J. W. Hingston
Drum cord brace..... D. M. Wright
Drying material from which oil has been ex-
tracted..... E. R. Edson et al
Dust collector..... C. Clark
Dust pan..... J. A. Widmer
Dyeing..... C. F. Kubler
Dynamios. Belt casing for axle driven.....
..... R. M. Newbold
Eaves trough and drain pipe..... S. Vogel
Eaves trough supporting bracket..... H. K. Flowers
Electric car controller..... F. A. & F. J. Roche
Electric circuit. Long distance..... M. S. Lewis
Electric circuit switch..... F. Conrad et al
Electric conductors. Bonding..... H. P. Brown
Electric current transmission..... 2 pats..... I. Kitsee
Electric elevators. Control of..... G. A. P. Weymouth
Electric energy. Transmission of intelligence
with the aid of..... 3 pats..... I. Kitsee
Electric furnace..... E. Appleby
Electric motors. Control system for.....
..... R. E. Bates
Electric regulator or controller..... H. R. Stuart
Electric switch..... J. R. Ruddick
Electric transmission of intelligence..... I. Kitsee
Electrical discharges. Means for producing
high potential..... O. J. Lodge
Electrolytic cell..... H. S. Anderson
Electromagnet..... A. C. Eastwood
Electromotive force. Regulating alternating
current..... H. R. Stuart
Elevator safety device..... J. Gummerson
Elevator safety device..... E. L. Mater
Engine..... C. V. Frisk
Engines. Valve actuating mechanism for ex-
plosive..... L. D. Tolliver
Engines. Valve gear and automatic cut off for
steam..... H. Dunlap
Engines. Valve gear for steam and other fluid
pressure..... G. Howard et al
Excavating machine..... J. Helm
Excavator..... W. B. Hard
Extension table..... H. Lambert
Eyeglass connection..... G. T. McEaney

Fabric. Machine for producing plaster hold-
ing..... G. A. Winkler et al
Fastener and seal for boxes, &c..... W. & G. Vickery et al
Fastener for carriage curtains, &c..... F. S. Carr
Faucet..... H. D. Cilley et al
Feed box..... J. J. Danner
Feed water heater for boilers..... C. D. Heywood
Feeder and band cutter..... H. D. Brown et al
Feeder. Time stock..... A. J. Yuenger
Fence..... J. E. Tyler
Fence fastener. Wire..... W. G. Hartmann
Fence lock. Wire..... J. W. Drummond
Fence machine. Wire..... D. P. Anthony
Fencing. Device for stretching wire..... L. G. Bartlett
Fermenting apparatus..... H. H. Freund
Fertilizer distributor..... W. P. Matthews
Fertilizer distributor..... T. H. Haynor
Fertilizer distributor and grain drill. Com-
bined..... J. M. Pearson
Fertilizers. Apparatus for making..... A. von Krottnauer
Fibers. Liberating and separating..... H. S. Blackmore
Fibers. Liberating, separating, and bleaching.....
..... H. S. Blackmore
Filing case. Vertical..... B. P. Hazeltine
Filter..... J. Q. Adams et al
Filter..... reissue..... C. Heilrath
Filter. Water..... 2 pats..... M. N. Lynn
Filtering system..... F. A. W. Davis
Fire and water proofing composition..... S. J. Hayde
Fire hose apparatus..... E. Cliff
Firing and powder charge simultaneously
throughout its length..... F. I. Du Pont
Firearms. Extractor or rejector mechanism
for breech loading..... G. E. Ellstrom
Fish bait or lure..... J. B. Rhodes
Fishing reel..... E. Holzmann
Flexible coupling..... J. B. Meriam
Flue stopper..... H. Dixon
Flues. Device for cleaning..... H. E. Parson
Flush tank apparatus..... H. H. McMullen
Forge. Portable..... W. F. Wendt
Fruit can opener..... F. Trickey
Fruit picker..... C. B. Hysom
Fuel. Making artificial..... A. Engle
Furnace..... D. M. Somers
Furnace..... R. W. Menke
Fuse block or cut out..... H. W. Lawrence
Game apparatus..... C. R. Judge
Game apparatus..... J. W. Arney
Game board..... C. W. Morhous
Garment fastener. Separable..... D. J. Schaeffer
Garment hanger..... G. S. Roberts
Garment supporter..... B. F. Orewiler
Garment supporter..... A. W. Mensor et al
Gas check. Needle..... W. S. Stapley
Gas compressor..... F. Wittermeier
Gas generator..... B. A. Sinn et al
Gas mixer or apparatus for regulating the
quality of gas..... C. M. & C. E. Kemp
Gas mixtures. Process of and apparatus or
producing combustible..... C. K. Harding
Gas purifier..... B. A. Sinn et al
Gas purifying apparatus..... P. Plauting
Gasoline engine..... H. E. Thompson
Gate..... H. N. & J. E. Hobart
Gate..... W. F. Sanford
Gear. Reversing..... W. J. D. Miller
Gearing. Change speed..... J. P. Barnes
Go cart. Folding..... E. Timmerhoff
Graphones and like talking machines. Tone
softening device for..... A. E. Thomas
Grapple..... F. Norman
Grate..... C. E. Ward
Grinding machine..... W. J. Muncaster et al
Grinding machine. Ball..... E. G. Hoffmann
Gun. Breech loading..... H. D. Bernard
Hammer. Pneumatic..... M. H. Green
Hammock..... J. Brayshaw
Harrow..... J. Sonerholm
Harvester binder knotting mechanism..... W. Stoffel
Harvester reel adjusting mechanism..... C. A. A. Rand
Harvesting machine. Self-propelled..... J. Zollinger
Hay press..... B. C. Bradley
Hide stretching machines. Truck for moving
or handling..... E. L. Post
High pressure cylinders. Means for operating
the discharge valves of..... W. Prellwitz
Hinge..... O. P. Breithart
Hinge..... M. C. Ryan
Hinge. Seat..... C. H. Woodruff
Hitching strap fastener..... D. J. Flannigan
Hoist..... W. A. Sparks et al
Hoist. Wagon..... J. D. Stalter
Holder for filling carriers or bobbins. Tem-
porary..... J. A. Perkins
Hoof pad..... W. B. Fairweather et al
Horse shoe cushion..... F. Clifford
Horse carrier. Water..... J. McKinley
Hose coupling..... 2 pats..... C. T. Palmer
Hose nozzle..... H. Gibbs
Hot air register..... J. T. Slater
Humidifier..... J. J. Smith
Igniter. Combined pocket and match..... A. E. Hollister
Insect destroyer..... L. Tanner
Insulator..... E. P. Morris
Internal combustion engine regulator..... A. N. Hotherell
Jars, bottles, &c. Sealing device for..... G. Knutzen
Journal bearing..... J. P. Finley
Kegs or vessels provided with internal should-
ers. Forming..... E. Moxham
Knitting machine..... C. H. & E. C. Wynne
Knives, forks, &c. Handle for..... G. S. Hastings
Lamp. Incandescent gas..... A. J. Hofmann
Lamp socket. Electric..... C. P. Parnell
Lamp socket. Electric..... N. Marshall
Last rimble..... F. E. Benton
Lathes. Automatic..... K. Webster
Lathes. Stock handling mechanism for turret.....
..... J. G. Oliver
Level..... J. Hodgson
Leveling and raising device..... G. H. Tenpas
Lever. Lifting..... P. E. Lund
Lever. Self-locking..... G. O. Bjorneby et al
Lifter..... P. Neddo
Lime. Hydrating..... J. Reaney, Jr.
Linotype machines. Trimming knife for..... J. Keenan

Locomotive boilers. Apparatus for creating
draft through furnaces of..... G. Hughes
Locomotive coal chute..... V. Z. Carracristi
Loom..... O. W. Schaum
Loom shuttle..... E. M. Main
Loom warp stop motion..... H. Wynan
Lubricator..... L. B. Manes
Lubricator. Grease..... 2 pats..... F. Lowry
Magnetically operated switch..... G. H. Hill
Mail bag catcher..... J. White et al
Mail bag catcher and deliverer..... R. C. Ogburn
Mail box. Portable..... L. A. Boory
Mail crane..... J. M. Mathes et al
Manhole terminals. Conduit section for.....
..... R. W. Lyle
Match machine..... G. Eveson
Match safe..... G. A. Lusk
Material. Apparatus for cooling granular
..... C. A. Matnam
Material. Mold for plastic..... F. F. Cole
Measurer, marker, and recorder. Lumber.....
..... C. G. Blades
Measures of fractions. Device for giving
linear..... E. P. Follet
Mechanical movement..... W. H. Voss
Metallurgical furnace..... H. H. Goodsell
Metering fluids..... R. Threlfall
Microcoustic or device to assist the hearing.....
..... J. R. Gault
Milk machine..... G. Hutcherson
Milling machine attachment..... W. Salmon
Miner's lamp..... G. A. Duncan
Modeling busts..... C. Mayer
Modeling groups..... C. Mayer
Molding machines. Discharging device for
crayon..... C. F. Held
Mortising machine..... C. J. Stafford
Motor actuator..... D. Bacon
Mower. Lawn..... W. Marshall
Music leaf turner..... C. E. Shuler
Music sheet..... W. Crippen
Musical and like symbols. Device for print-
ing..... E. Cremers
Nail driving machine..... H. N. Thune
Net frame. Crab..... I. Franklin
Newspaper rack..... W. H. De Long et al
Nut and pipe wrench. Combined..... M. E. Garwood
Nut lock..... J. T. Smith
Nut lock. Axle..... E. S. Morris
Oil and graphite lubricator. Steam heated.....
..... J. C. Swoyer
Oil can attachment..... H. J. Klumire
Oiling device. Automatic..... C. Reinke
Optometer..... L. G. Booth
Ordnance. Apparatus for withdrawing smoke
and gases from..... C. V. Olsoy
Packing and display case..... C. H. Fox
Packing machines and the like. Bag spreader
for tea..... E. S. Peile et al
Paper, &c. in the manufacture of box slips.
Machine for folding..... W. Royd
Paper package and cabinet. Toilet..... J. T. Hoyt
Pencil holder and book mark..... E. H. Beck
Pen holder..... T. C. Strickland
Photographic flash light apparatus..... T. C. Smith et al
Photographic printing frame attachment.....
..... F. F. Core
Piano case brace..... M. F. Richardson
Piano players. Adjustable connecting attach-
ment for..... R. W. Martin
Pipe elbows. Machine for making..... U. D. Alexander
Pipe. Machine for helically corrugating..... J. D. Isaacs et al
Pipe wrench..... E. Huntley
Pipe wrench and shifting spanner..... R. M. Carroll
Planter. Cotton seed..... L. E. Waterman
Plates. Roll for scarfing..... P. Patterson
Pliers..... P. A. Scott
Plow..... J. Collins
Plow and cultivator..... R. Dalton
Pneumatic carrier..... T. Bemis
Pneumatic tired wheel..... T. B. Jeffery
Potash. Apparatus for extracting crude.....
..... G. W. Henry et al
Power generator. Hydraulic..... A. P. Wight
Printer's galley..... J. L. Lee
Printing and embossing press..... W. A. Billman
Projectile..... J. W. Anderson
Projectile. Soft metal cap for..... T. C. Tipper et al
Projection apparatus..... P. H. Wynne
Pulley. Split..... W. R. Patton
Pump..... G. I. Cox
Pump..... H. Cole
Pump. Double acting plunger..... J. Grundel
Pump mechanism..... C. H. Perry
Quilling machine..... G. Adsit
Quilling frame..... L. D. West
Rack..... J. A. King et al
Radiator valve..... D. F. Morgan
Rail joint..... G. T. Joseph
Rail joint..... J. Stephens
Rail joint..... E. W. Finner
Rail joint..... W. W. Post
Rail sections. Clamp for bracing and con-
necting track..... I. N. Spaid

Continued in December Number.

Canadian Patents

Canadian Patents may now be obtained by the inventors for any of the mechanical inventions named in the foregoing list, provided they are simple, at a cost of \$30 each. If complicated the cost will be a little more. For full instructions address Inventive Age Publishing Co., 918 F Street N. W., Washington, D. C.

Foreign patents may also be obtained in certain other countries.

FREE!

Send us 2-cents to pay for postage and we will mail you a valuable copyrighted book, "How to obtain Patent, Caveat, Trade-Mark and Copyright Protection, with Decisions in Leading Patent Cases" entirely free of charge. Address:

INVENTIVE AGE PUBLISHING COMPANY,
(Dept. P.) WASHINGTON, D. C.

A Great Half-Price Offer

Read every word of this announcement, for it is the opportunity of years. The four greatest magazines in this country have combined to be offered together at a greatly reduced rate. Never before was such an offer given to the public, and it is safe to say never will it be made again. This year several magazines have increased in their subscription price, which shows how much greater this offer really is. The only reason we are making it to the people of this vicinity is because we find we have not as many subscribers as we desire in this particular locality. But only a limited number will be sold at this price, therefore we advise everyone to accept this offer without delay. When we have received a certain number, we shall withdraw the offer.

PUBLISHERS' PRICES

Cosmopolitan,	=	=	=	=	one year	=	\$1.00
Woman's Home Companion,	=				" "	=	1.00
The Review of Reviews,	=	=			" "	=	3.00
The Inventive Age,	-	-	-	-	" "	-	1.00
							<u>\$6.00</u>

ALL FOR \$3, JUST ONE-HALF THE PRICE!

THE COSMOPOLITAN

which was recently purchased by Mr. W. R. Hearst, has been greatly improved by the new management and is now the most popular ten cent illustrated monthly in the world. Already its sales have increased 100,000 over what they were four months ago, when it became a part of the famous Hearst publishing organization. An edition of 500,000 copies a month is now in sight, and the publishers are sparing no effort to secure for it all that is most desirable in the way of pictures, stories and articles. As an example, pictures and stories by Frederic Remington and stories by W. W. Jacobs are now running in the Cosmopolitan and a strong new serial by H. G. Wells is announced for immediate publication.

The Review of Reviews

Substantial American men and women are going to keep up with the times and they are going to take the shortest cut—which is "The Review of Reviews"—a monthly survey of the world's progress.

Woman's Home Companion

is not excelled by any other home and family publication in the world. Stories, fashions, articles, and illustrations.

GRAB THIS OPPORTUNITY

If you do not want but one of the magazines above with our paper for a year, you cannot do better than to accept this offer while it is hot right off the bat and before it is withdrawn.

Cosmopolitan, one year	-	=	=	=	=	\$1.00
The Inventive Age, one year	-	=	=	=	=	1.00

BOTH FOR ONLY \$1.50

Fill out Coupon—mail it to-day with your remittance—and be sure of getting the greatest magazine combination that was ever offered—an opportunity of years and one it is safe to say will never be made again.

CUT OFF ON THIS LINE

THE INVENTIVE AGE

Date.....

Enclosed please find \$.....for which enter my name for one year's subscription to your paper and the following magazines.....

Name.....

Address.....

Address: THE INVENTIVE AGE PUBL'G CO., 918 F St., Washington, D. C.

A JOURNAL
OF MANUFACTURING
INDUSTRY

THE Inventive Age

AND SCIENTIFIC PROGRESS.

SEVENTEENTH YEAR.
No. 12.

WASHINGTON, D. C.—DECEMBER, 1905.

SINGLE COPIES 10 CENTS.
ONE DOLLAR A YEAR.

GALVESTON'S GREAT SEA WALL.

By CHARLES ALMA BYERS.

GALVESTON, the Gulf of Mexico's most important port, has arisen from ruins and is at last secure. For many years, from the date of its founding until recently, it was in danger of being swept from the map at any time as completely as it was on September 8, 1900, and it had been repeatedly warned against such danger, but to-day it stands storm-proof for all time to come. The building of a solid concrete wall $4\frac{1}{2}$ miles in length and seventeen feet in height between the Gulf and the city, forms a protection for the Oleander City as safe and secure as though it reposed behind the breast-work of the real Gibraltar. Waves may roll and hurricanes blow, but Galveston and her people will no longer live in constant fear therefrom.

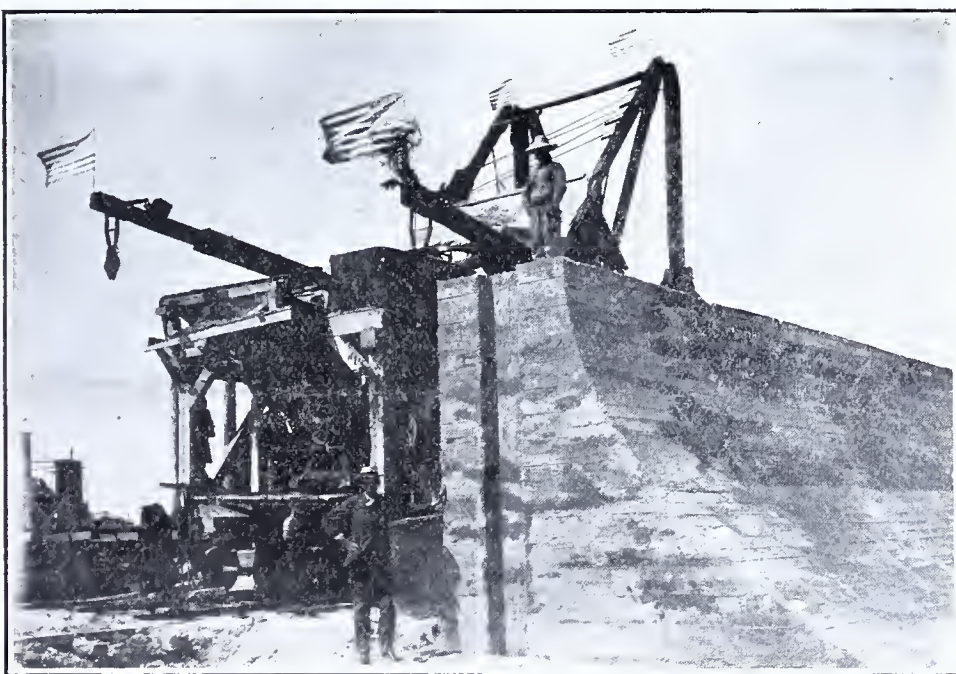
That great disaster of a little more than five years ago, to which the city of Galveston was subjected, is still fresh in the memory of all. There had been several slight overflows of the Gulf which did considerable damage



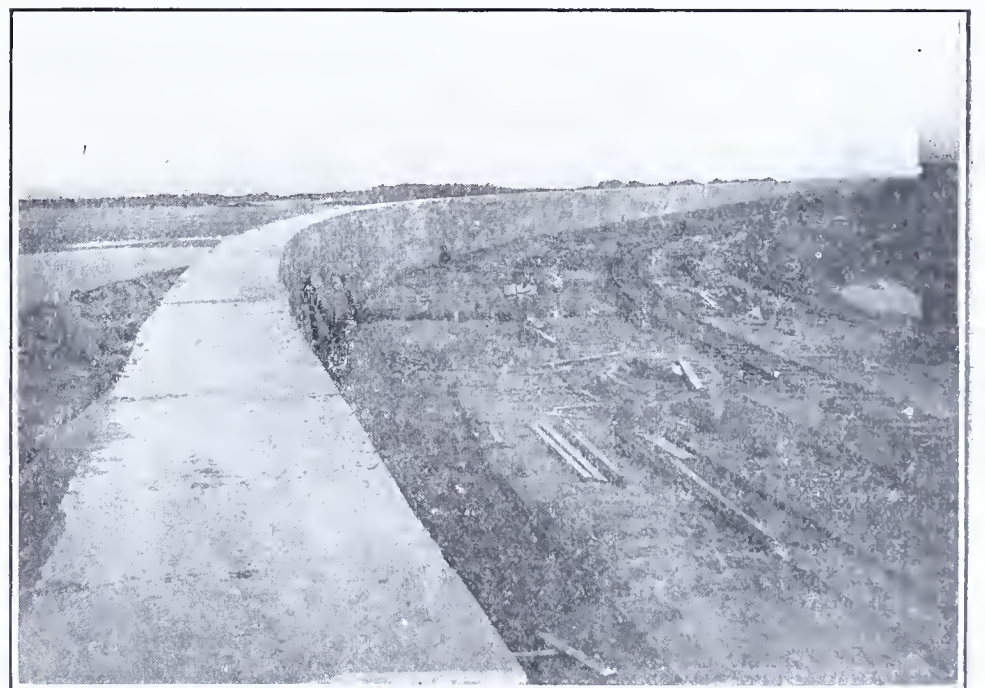
BUILDING THE SEA WALL AT GALVESTON.

The initial steps for protection were taken soon after the city began to recover from that overwhelming disaster. A meeting of the board of city commissioners was held, and after careful consideration, a resolution was passed authorizing the appointment of a committee to confer with competent engineers in regard to devising some form of protection against a repetition of such an overflow. The questions upon which this committee desired reports were as follows: "1. The safest and most efficient way for protecting the city from overflow of the sea. 2. Plans and specifications and estimates of the cost of a breakwater, or sea wall, of sufficient strength and length and height to prevent the overflow of the city from the Gulf. 3. Plans and specifications and estimates of the cost for filling and grading the city, so as to protect it from overflow, and to secure sufficient elevation for proper drainage and sewerage."

A board of engineers of national



AN END VIEW OF THE WALL.



THE SEA WALL COMPLETED.

to property, but up until that sad September day 1900, very little heed was taken of those occasional warnings. When that great storm swept

over the city, however, wiping over 8,000 lives out of existence and destroying more than \$20,000,000 worth of property, the public's realization

of the necessity for protection was awakened; and as a result of that awakening, that city is as safe today as it would be if removed a hundred miles inland.

renown was selected to report upon these propositions, this board being composed of General H. M. Robert, Chief of Engineers, U. S. A., retired; Major H. C. Ripley, and Mr. Alfred

Noble. In the first month of 1902 this board made its report, and the plans submitted therein called for the building of a solid concrete wall between the city and the Gulf, to be $3\frac{1}{2}$ miles in length and seventeen feet high, and for the raising of the city to the level of the top of this wall. The cost of this work, under the plans submitted, was estimated at \$3,505,040, truly an enormous sum; but the people of Galveston remembered that more than five times that amount had been destroyed by a single overflow, besides many lives, and the plans were unanimously adopted. The national government also saw the advisability of such an undertaking, and a few months later agreed to extend this wall nearly a mile further, at a cost of \$591,046.25, making the total length about $4\frac{1}{2}$ miles and the total estimated cost \$4,096,086.25.

The plans also proposed that the sea wall be constructed by the county and the grade-raising be done by the city. To this grade-raising, however, an exception of 100 feet was made along the sea wall right-of-way, which was attached to the county's share of the work. The county immediately issued bonds sufficient to construct the sea wall, and then secured the assistance of the state in the grade-raising assigned to it. The city also issued bonds, in the amount of \$2,000,000, for raising the city to a level with the top of the wall. This was done with the agreement with the state legislature that the taxes be remitted for a period of eighteen years, the same to be paid as usual, but the part which formerly went into the state treasury, to be permitted to accumulate as a sinking fund for the redemption of the bonds and to pay the interest thereon.

Work on this gigantic undertaking in engineering was commenced about the middle of October, 1902, eight months after the adoption of the plans, and the county's portion of the wall was finished in July, 1904, while the government's part of it was not completed until a year later, in 1905. As an engineering feat, the building of this sea wall and the raising of the city to a level with its top is a work that has not been surpassed in recent years. The wall is built of solid concrete, made of crushed granite from Granite Mountain, Texas; sand from San Jacinto River; cement from Germany, and water from Alta Lana, Texas, all thoroughly mixed by immense machinery especially constructed for this purpose, and tamped into forms in sections. It is $4\frac{1}{2}$ miles in length and has a weight of nearly 40,000 pounds to the lineal foot. A round piling foundation supports the wall, the piles of which are 45 feet long, and 12 inches at the top and 17 inches at the bottom in diameter, and which are driven in four rows at a distance of 4 feet apart from center to center. The wall proper is 17 feet high and measures 16 feet at the base and 5 feet at the top in width. To protect it from undermining on the Gulf side, there is a row of sheet piling, driven to a depth of 24 feet, extending the entire length of the wall, and also an apron of rip-rap 27 feet in width.

In the $4\frac{1}{2}$ miles of wall were placed over 18,000 carloads of material—concrete 7,500 carloads; rip-rap or broken stone to prevent the action of the water directly on the sea wall, 5,000

carloads; sand, 2,500 carloads; cement, 1,350 carloads; round piling, 1,000 carloads; sheet piling, 750 carloads; and reinforcing steel rods, 10 carloads.

The work of grade-raising is almost as interesting as the construction of the wall. It was commenced about a year and a half ago, and it is expected to be completed early in 1907. The first move in this work was to dig a canal along the sea wall so as to intersect the avenues of the city, the material thus removed being used in the right-of-way fill-in of the wall. Other material for filling in the city is being obtained from the Gulf's coast line and from between the government jetties. For this purpose self loading and discharging and self-propelling dredges are used, which steam from the excavating ground to pipe-line stations located at places where the canal intersects with the avenues. The material thus excavated and carried to these stations is discharged through pipes running down the avenues, which gradually elevates the area, while the water contained in the material escapes through a run-off canal. This, besides raising the city, is serving to deepen the harbor entrance for some distance out into the sea.

After the grade-raising is completed, with the exception of the canal used for the dredges to pass to and fro, the dredges will back out of the canal toward the Gulf, filling it up as they go, and thus will be finished entirely the work on the grade-raising. When this will have been done, and the grade raised on a level with the top of the wall, a driveway of about 50 feet in width along the sea wall will be erected and substantially paved. Bordering this there will be a 40 foot strip of ground covered with Bermuda grass, and then a sidewalk 9 feet in width overlooking the Gulf, with an iron railing upon the top of the wall.

In raising the grade it will be necessary to raise 2,156 houses and all of the streets, sidewalks and alleys, both private and city property. The expense of the grading is borne entirely by the city, but the cost attached to raising the houses is paid by the individuals who own them.

The building of this sea wall means a great thing for Galveston, and as a result of the protection, faith in the stability of that progressive city is experiencing a rapid growth.

THE EVOLUTION IN AGRICULTURAL MACHINERY.

THE evolution—or rather, the revolution—in agricultural machinery has all taken place within the last century. A hundred years ago, farm implements were almost as primitive as they were a thousand years ago. The cradle scythe, for instance, is only a little more than a century old, and the cast iron plow was first used even later. Now we have steam plows, combined harvesters and threshers and auto-mowers; and though these are commonly used on the huge farms of the West where most of our grain is grown, their employment is so recent that only a small part of the population have ever seen them at work. Yet they are changing our life in all its phases—freeing the farmer from the monotony of hand labor, placing us in the front rank of exporting, and more than that, they are altering the immortal conception of agriculture, and the pastoral and idyllic associations that have gathered about it since the days of Abraham. In no other line of invention has progress been more marked and more rapid. One of the most striking of the exhibits at the St. Louis Exposition was the wooden plow used by Daniel Webster on his father's farm, beside a modern eight-gang steam plow. An illustration (Figure 1) of these contrasted devices is shown herewith.

All the great crops are now planted, and all except cotton are gathered, by machinery. The plowman no longer trudges slowly and wearily back and forth across his field. He rides a sulky plow with a spring seat. There are special plows for every need: turf plows, stubble plows, subsoil plows, plows for heavy work, plows for light work, and gang plows turning three furrows at once. Plowing by

steam is a common practice on the great wheat ranches of the Pacific Coast. On the tule lands of California, a sixty horse-power traction engine drawing twenty-one feet of disk plows will break the ground to a depth of ten inches at the rate of sixty acres a day. With mold-board plows designed especially for this work, a strip twenty-eight feet wide can be broken. This means, in other words, that a man and a pair of horses with a single mold board plow would have to cross a field twenty-eight times to do the same work that the traction engine does by one trip of its plows. A farmer of the central west who uses a small traction engine and a gang of four fourteen-inch plows says that it costs him from 50 to 52 cents per acre to break his ground. He considers steam economical.

The plowing done, the manure spreader replaces the hand-fork and its backache. While the farmer with a pair of horses drives back and forth across his fields, the fertilizer is mechanically spread evenly over the land from the rear of his wagon. Economy in fertilizer is effected by this method, because it is spread with greater evenness than is possible by hand, not to speak of the saving of toil.

The land made ready for the reception of the seed, machinery again takes the place of muscle. The sower goes forth to sow, but not as he once did, dropping seed into the soil, trudging backward and forward from dawn until twilight. The grain is broadcast and drilled in by machinery, which at the same time registers the acreage sown. In like manner corn is drilled in, listed or planted in hills; potatoes are planted; and even cab-

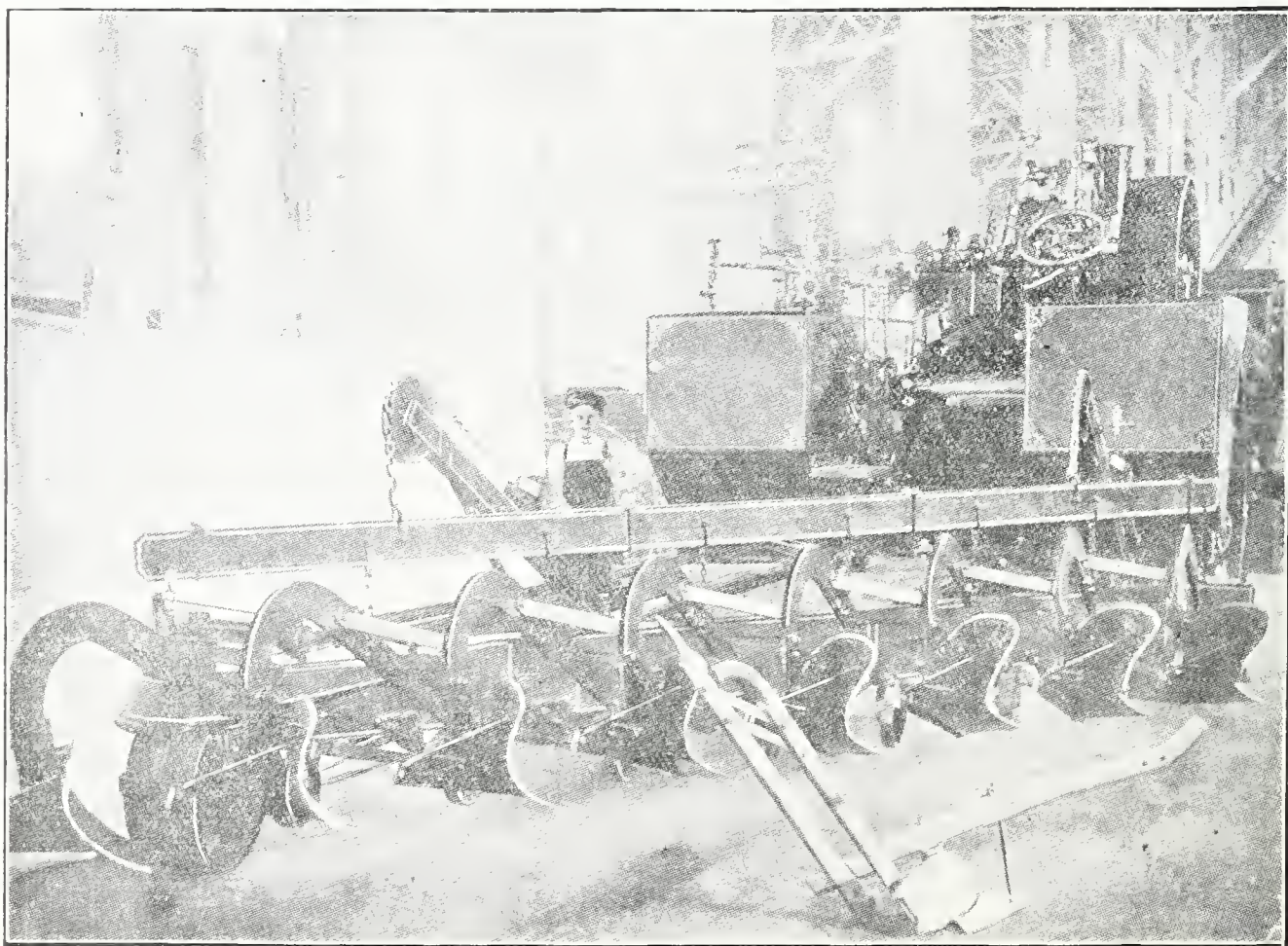


FIG. 1.—THE WOODEN PLOW USED BY DANIEL WEBSTER ON HIS FATHER'S FARM, BESIDE A MODERN 8-GANG STEAM-PLOW.

bage, cauliflower and tobacco plants are set out by the aid of mechanical devices.

After the crop is planted, the weeds promptly appear. They once meant the hoe, blistered hands, tired backs, and a weary battle. Today the farmer has his choice of a great variety of cultivators, either guided by handles, the driver walking behind, or made with wheels and a seat, the driver riding in comfort. Thus corn and potatoes are ridged up, and the ground is kept clean and in good condition. There is also a great variety of hoes, rakes and plows for the cultivation of special crops, which have supplanted the old hand tools on the great seed farms and market gardens.

But it is when we come to the harvest that we find the greatest marvels of mechanical ingenuity. Drawn by horses, the self binder cuts an eight-foot swath across the field of ripened wheat, gathering it and automatically binding it in bundles at the same time; and if a header be preferred, the heads of the standing grain are taken off cleanly and poured in a steady stream through a chute into the wagon that is driven beside it. The most spectacular scene of agricultural progress is the combined harvester and thresher, which is used on the great grain seas of California and was illustrated in the AGE of May 1903. From horizon to horizon stretch the ripened fields. Where are the harvesters to garner such a crop? Measured by the methods of small farms, the problem of harvesting seems like emptying the Great Lakes with a dipper. But the steam harvester moves steadily forward into it. The grain falls in a great swath on one side, melting away before the advance of the machine. On the other side, with the same regularity, drop sacks of grain ready for the miller. The ranchman following with his team picks up a sack filled with threshed and winnowed wheat from the very spot where but five minutes before the wheat stalks stood in the sunshine.

The combined harvester and thresher is at its best on level plains, but special side hill machines for rolling country have been perfected so that they can follow wherever the gang plow leads. The accompanying illustration (Figure 2) shows the use of a machine on a grade that would discourage many farmers. Horse or mule power is used in many places instead of steam, thirty or more animals being employed. Such a machine, with a twenty-two foot leader, can cut, thresh and sack forty acres of wheat in a day. It requires a crew of but four men—a driver, a header-runner, a separator tender and a sack sewer. The cost of cutting and threshing is usually \$1.25 per acre.

There has been for several years in operation in California the largest combined harvester in the world. It consists of a traction engine capable of hauling 75 tons, which takes the place of 60 horses; a mower which cuts a 36-foot swath, and a complete threshing machine. The drive wheels of the monster are 8 feet in diameter with tires 48 inches wide on which are ridges an inch and a half high. It averages three and a half miles an hour in good grain. The thresher has a capacity of 100 acres a day. Eight men are employed on it. The huge machine will work equally well on level or hilly country, having sufficient power to take a 20 per cent grade without difficulty. It is 66 feet long, half as wide, and weighs more than 100 tons. Oil is used as fuel.

The amount of human labor now re-

quired to produce a bushel of wheat from beginning to end is on an average only ten minutes, and the cost of such labor is 3 and $\frac{1}{2}$ cents. When men now living were boys, a bushel of wheat represented three hours and three minutes of labor, at a cost of 18 cents. Just before the Civil War, a hushel of corn represented more than four and one-half hours of human labor at a cost of 35 and a fraction cents; today, 41 minutes of labor produce the same amount for a little more than 10 cents. The potential saving in money, to say nothing of time and strength, thus becomes enormous.

In the great corn belt, the corn binder does what the mower does in the hay field. It cuts the corn, binds it in bundles, and deposits five of them in a spot as fast as a man can shock them up. A still further advance is a corn shocker which cuts the standing corn, and by a vertical rotary reel and a revolving table, forms a perfect shock, which, when bound,

useless stalks are made available as a fodder relished by the cattle. And in the last step before the corn reaches the miller, again we find the use of a machine. The steam sheller will shell a bushel of corn a minute, while in the old way the labor of one man was required for one hundred times as long. It has been estimated that it would require the entire population of the United States for 100 days, to shell by the old hand method the annual corn crop of this country.

Almost equal progress has been made in clover hullers, bean separators, etc. Every one is familiar with the mower, the tedder and the horse rake used for the hay crop. To these have been added the hay gatherer and stacker drawn by horses, and a press operated by horse power. To harvest and press a ton of hay by hand required 35 and a half hours of labor; with modern machinery it takes eleven hours and a half. The greatest saving is in the cutting and curing of the crop, which by hand demand eleven



FIG. 2.—USING A MACHINE ON A STEEP GRADE.

is lifted by a crane and deposited where it is wanted. One man and a pair of horses can thus do the work of two or more field hands. By the latest advance in agricultural mechanics, described in the INVENTIVE AGE for May 1905, corn is picked and husked by a single operation. Husking and shredding have long been so combined. The corn in the stalk is fed into the husking machine from the wagon. By tapering rolls, the ears are snapped from the stalks and then husked. The stalks are shredded and with the husks dropped on an inclined sieve, which takes out such of the corn as may have been shelled. The fodder passes on to a fan and is blown through a tube up into the mow. The machine does this work at the rate of thirty hushels of husked corn an hour. Not only is there a saving in time and labor by using this apparatus, but there is also the addition of a new food value to the product. This we owe to the shredder. The once nearly

hours, and by machinery one hour and thirty-nine minutes.

Machinery plays a hardly smaller part in the lesser industries of the farm. The hen has seen herself outdone by the incubator. The cream separator has replaced the skimming pans of the dairy; the windmill pumps water for the cows. Instead of the whisk broom and pail of solution, spraying machines drawn by horses take care of the potato bugs. A shearing machine has been used with success on the big western sheep ranches. Even the cow may not escape, for milking machinery seems likely to come into favor.

In the incidental work of the farm, machinery has proven an important factor. The gasoline engine furnishes power in a most available form. It is rapidly supplanting hand labor in many ways. It grinds bone for the poultry and feed for stock. It saws the year's supply of wood. It has been used of late to drive mowing machines. By a small steering wheel

in front, the machine is made to run just outside the standing grass, and its work is most effective. Automowers are used in many large city parks. The soft earth of the farm has thus far prevented the extensive use of automobile machinery in the fields, owing to its weight; but in districts where good roads prevail, it is already a factor in the marketing of crops, notably in certain fruit sections.

It is estimated that the amount of money invested in the manufacture of agricultural machinery in this country is upwards of \$200,000,000. At the outbreak of the Civil War, the industry required but little more than \$3,500,000. The cost of material yearly consumed in the manufacture of farm implements is more than \$40,000,000. The value of the annual products is considerably more than \$100,000,000. The United States stands at the head of all countries in agricultural machinery, and Illinois leads all the states in the manufacture of farm implements, harvesting machinery especially. In Chicago alone is invested more than 20 per cent of the total capital in this industry for the United States. Chicago builds more of the costly and complicated machines, such as the combined harvesters, binders and mowers, than all the rest of the country. The great crop-producing states are in many cases among the smallest producers of the tools which has given them their pre-eminence.

Machinery has revolutionized western agriculture in one way, and eastern agriculture in another way. The northeastern states have developed intensive farming; the prairie states and the Pacific states extensive farming. New Jersey and Connecticut, for instance, have more farms than they had a decade ago, but less acreage. Although the farms are smaller than they were, the value of their products is half as much again. The farmers stopped growing the great crops when machinery was applied to the prairies, and took to trucking, making a far greater profit on less land. On the other hand, in the west during the same period, both the number of farms and the acreage increased. Machinery has thus brought a different result and to each a greater profit.

Only a generation ago, the prairie schooner went its slow way over the plains. The next scene in the story was the weary breaking of the virgin soil with plows drawn by oxen. Then came—in the wonderful panorama of western development—the smoke and whiz of the transcontinental railroad. Now the steam plow and the great harvester and binder complete the succession of typical scenes. Agriculture has been moved further forward among the great industries, in the lifetime of men now living, than it was before moved since man's earliest pastoral days. The revolution has come so fast that it has not even displaced labor; for farm laborers are less abundant than they were in the old days. The emancipation of the farmer from drudgery has come without bringing hardship to any class.

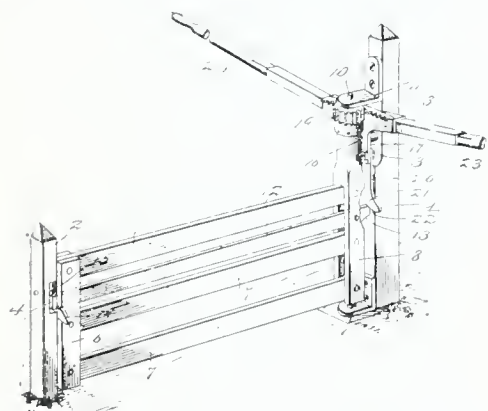
American agriculture acknowledges its debt to American inventive ingenuity and enterprise. It has solved the problem of successful competition with countries where labor is cheap. Foreigners recognize our superiority, and are hastening to buy our machines. France and Germany are our largest buyers, taking millions of dollars worth every year. All over the world our machines may be seen—on the steppes of Siberia, over the kopjes of South Africa, on Australian plateaus, on the table lands of Asia Minor. How the world's wide use of improved apparatus will, in time, affect the production and prices of the great staple crops, is a question for economists to discuss. It is certain that a force has been set in motion the result of which cannot be wholly foreseen.

CLEVER NEW PATENTS.

Gate.—Truck.—Marking Gage.—Clay Grinding Machine.—Machine for Forming Lock Tongues.

Gate.

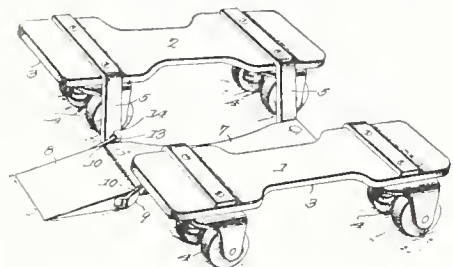
Messrs. Dudley S. Chilton and John Yo. Lg, both of Port Royal, Kentucky, have purchased from G. F. Seiser of the same place, an interest in a patent obtained by the latter on a gate. The object in view is the production of a comparatively simple gate, which may be readily and positively operated at points on either side of, and remote from, such gate, said gate being furthermore provided with latching mechanism, which will be automatically actuated to release the gate at the beginning of its opening movement. As shown in the accompanying cut, the gate is hinged to swing freely,



and the ordinary keeper is mounted on the latch post. A latch member 12, pivoted on the hinged end of the gate, cooperates with the keeper. A gear 19 secured to the upstanding hinge post 8 of the gate, is engaged by a segmental rack, mounted on an operating member pivoted to the post 1. An adjustable portion is carried by this operating member, and has a seat for the latch, and a pair of cams are disposed on opposite sides of the seat. These cams are designed to act upon the latch for releasing the gate when the operating member is moved to open such gate.

Truck.

The accompanying illustration gives a very good idea of a truck that has been patented by Mr. H. Weber, of Colorado Springs, Colo. The truck is more particularly adapted for use in moving automobiles and other wheeled vehicles, and is designed so that the same may be moved in any direction without the necessity of employing jacks or other lifting mechanism. It will be noted that a pair of bolsters 1 and 2 are provided, each of

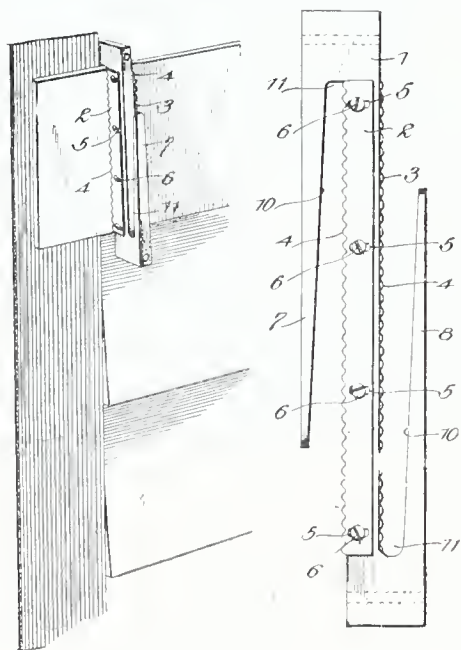


these bolsters carrying at each end a two-wheeled caster 4. The bolsters are connected by drop frame bars 5, having an intermediate platform 7. A skid 8 is pivoted at one end of the

platform. In use, one of these trucks is placed under each wheel of the vehicle, the wheels being merely run up the skids and on to the platforms 7. With these devices, therefore, the heaviest automobiles may be readily turned, or moved backward or forward by a single attendant, making the devices particularly useful where the space is contracted or confined.

Marking Gage.

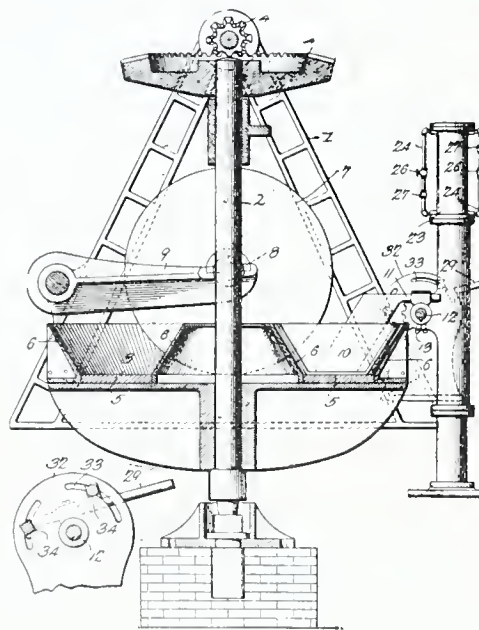
Frank A. Tustison, of Parsons, Kansas, has patented a marking gage, which has proved an entirely practicable and very useful instrument. The structure of the same will be clear by reference to the accompanying cut. 1 designates a cutter-bar, on the respective sides of which are the cutter-blades 2 and 3, having oppositely-disposed teeth 4, and each provided with slots 5, through which project fastening devices 6, by means of which the blades can be adjusted toward, and away from, the reversely-extending guides or fingers 7 and 8, secured to the opposite ends of the bar 1 and arranged approximately parallel to the cutting edge, with the inner faces of the fingers inclined outwardly toward their free ends. These guides are terminally secured to the respective ends of the bar 1, and extend nearly the entire length thereof, being approximately parallel with the cutting edges of the respective plates. The adjacent edges of the respective guides are inclined slightly, so that a longitudinal movement will cause the teeth 4 to impinge into the material and thus leave a distinct mark, which



will clearly indicate where the cut is to be made. In using the device, the sides 10 of the respective guides are slid against the studding or vertical support to which the boards are to be secured, so that the edge of the board will fit in the slot 11 between the guide and the edge of its complementary cutter. By slightly reciprocating the device, the inclined edge of the guide will cause the teeth to contact with the board with sufficient friction to cause a well-defined mark to appear upon the board, so that it will be clear where the cut is to be made. If the opposite end of the board is to be cut, the gage can be reversed and the operation repeated.

Clay Grinding Machine.

An important improvement in Clay Grinding Machines has been patented by Mr. D. F. Lepley of Connellsville, Pa. The invention relates to the mechanism employed in connection with the manufacture of silica bricks, such as are now used as substitutes for ordinary fire clay. The principal object is to provide means for grinding or reducing the sandstone to the

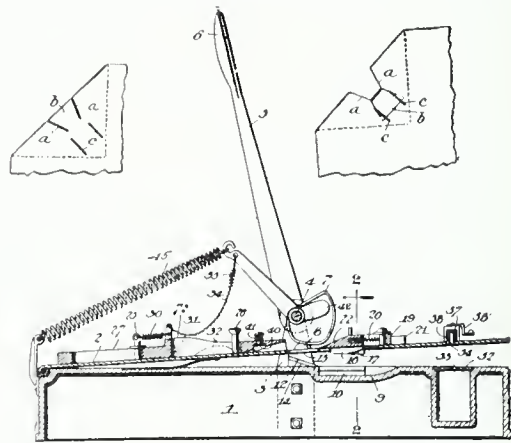


form of powder, and at the same time mixing it with the binding agent, a further object being to provide dipper actuating mechanism in which provision is made for insuring the removal of all the contents of the dipper at each operation. To this end, a grinding pan 3 is provided together with the usual crushing rolls 7. On one side of the pan is mounted a standard, at the ends of which are located cylinders 23. These cylinders contain pistons connected by a rod having a rack, and meshing with such rack is a gear wheel that is carried by a horizontally disposed shaft 12. A dipper 10 is carried by the shaft and is movable thereby to a filling position within the pan, and to a dumping position upward and outside the periphery of the pan. These various movements are effected and controlled by the movement of the pistons.

Machine for Forming Lock Tongues

Mr. Samuel D. Ruth, of Beatrice, Nebraska, has recently secured a patent on a machine for forming lock tongues in sheets of paper, envelopes and the like, these tongues being employed for fastening the sheets or envelopes without the use of clips, eyelets or any similar securing devices, now in ordinary use. A sectional view through the machine is herewith illustrated. Also two figures are presented showing the character of the

cuts made, and the manner in which the tongues are used in fastening the paper together. In the machine, a base is provided having a recess, two of the walls of such recess being undercut to form tongue-receiving seats. A pair of divergent blades are carried by the base, and a pair of tongue-engaging shoulders are mounted on the base adjacent to the blades. A movable plate, having an opening with a wall portion coacting with the angularly disposed cutters to form a tongue in a sheet of paper, is also provided, and a pair of depending blades is carried by the plate and cooperates with the undercut walls to form the tongue-receiving slits in the paper. A spring tongue is mounted on the plate, and is arranged to engage the portion of the paper between the tongue-receiving slits, while a pair of folders also carried by the plate is provided with means for forming a longitudinal crease or fold in the tongue. There is also provided a cam that is carried by the plate, and the lug or pin secured to one of the folders engages the cam, while a flattening or presser foot is mounted on one of the folders. A suitable cam lever is employed for depressing the plate, and connections are made between the cam lever and the main folding member,



said lever also carrying an auxiliary lug that engages the presser foot. This machine, as already stated, is devised for forming the slits shown in the accompanying illustration, a number of superimposed sheets of paper being bent at one corner and provided with two divergent slits *a a* forming a tongue *b b*, the outer corners of which are arranged to be engaged in parallel slits *c c*. In practicing the invention, the slits are first cut, then the tongue formed by the divergent slits is bent over on top of the paper, and its opposite edges inserted in the parallel slits. This forms a positive lock for the paper, and it may be utilized in securing together a number of sheets, or may be employed for closing envelopes, circulars and other articles, which are to be sent through the mail.

PATENTS, CAVEATS, TRADE-MARKS, COPYRIGHTS, AND DESIGNS. TWENTY-FIVE YEARS PRACTICE.

Send Your Business Direct to Washington, Saves Time and Insures Better Service.

My office is close to U. S. Patent Office. FREE report as to patentability made. Personal attention given. Book "How to Obtain Patents," etc., sent free. Patents procured through E. G. Siggers receive special notice, without charge, in THE INVENTIVE AGE, illustrated monthly—seventeenth year—terms \$1.00 a year.

E. G. SIGGERS,

918 F STREET NORTHWEST,
WASHINGTON, D. C.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

PENNSYLVANIA GLOBE GASLIGHT CO.

v. BEST et al.

(Circuit Court, N. D. New York.

May 18, 1905.)

PATENTS—VALIDITY AND INFRINGEMENT—
INCANDESCENT LAMPS.

The Campbell patent, No. 447,757, for a method of using hydrocarbon fluids for illuminating purposes, and a portable lamp for practicing such method, was not anticipated; and, while the lamp uses old elements, the combination is new, and produces a new and useful result, and discloses invention. The patent also held infringed.

PANZL v. BATTLE ISLAND PAPER CO.

et al.

(Circuit Court of Appeals, Second Circuit.

April 19, 1905.)

1. PATENTS—INVENTION—COMPOSITION FOR
LINING PULP DIGESTERS.

The Panzl patent, No. 644,367, for a composition of material for lining vessels used for storing or boiling corrosive liquids, intended for a lining for pulp digesters, which should be acid proof, in claim 3 describes a combination in new and specified proportions and in a new manner of well-known materials which produces a new and superior composition, and was not anticipated, and discloses invention. Claims 1 and 2 are void for lack of invention in view of the prior art, or because they fail to specify the proportions of the ingredients entering into the composition, and do not, therefore, acquaint those skilled in the art with the necessary information to enable them to practice the invention without experimenting. Claim 3 also held infringed.

2. SAME—CHEMICAL COMPOSITION—NECESSITY OF SPECIFYING PROPORTIONS.

A patent for a chemical composition must not only give the names of the ingredients used in making the composition, but also the proportion of each, so that the invention may be practiced by those skilled in the art without further experimentation.

3. SAME—DEFINITION OF TERMS—"CHAMOTTE."

The term "chamotte," as used in the arts and in the Panzl patent, No. 644,367, as an ingredient used in making an acid-resisting composition for lining pulp digesters, denotes a species of specially pure calcined clay, which must be silicate of alumina, and is not the equivalent of crushed fire brick, used in prior preparations, which may or not have the chemical composition and properties of chamotte.

4. SAME—SUIT FOR INFRINGEMENT—RE-HEARING.

An application to reopen the case after final hearing in a suit for infringement to permit the taking of additional testimony on an issue of fact is properly denied, where the evidence could have been produced on the hearing by the exercise of due diligence.

HEMOLIN CO. v. HARVEY DYEWOOD
& EXTRACT MFG. CO. et al.

(Circuit Court of Appeals, Second Circuit.

April 19, 1905.)

1. PATENTS—VALIDITY—SUFFICIENCY OF
DISCLOSURE.

When a patent contains a sufficient disclosure of the claimed invention, it will not be invalidated either by the failure of the patentee to state the causes which produce the result, or by a mistaken statement thereof.

2. SAME—INFRINGEMENT—PROCESS OF MAKING LOGWOOD EXTRACT.

The Austen patent, No. 491,972, for improvements in the art of making coloring matter from logwood, covering a process and the resulting product, which is a non-hydroscopic powder, was not anticipated, and discloses invention. Also held infringed.

VOIGHTMANN et al v. PERKINSON et al.

(Circuit Court of Appeals, Seventh Circuit.

April 11, 1905.)

1. PATENTS—PATENTABLE INVENTION.

A conception alone, although first in time, is not patentable, but must be accompanied

by mechanical embodiment, which, to make the invention patentable, must itself be unanticipated.

2. SAME—FIREPROOF WINDOWS.

The Voightmann patent, No. 600,186, for a fireproof window, is void for lack of patentable invention; being for an aggregation of old elements, each of which performs its old function to produce the old result.

S. FRANKLIN & CO. v. ILLINOIS

MOULDING CO. et al.

(Circuit Court of Appeals, Seventh Circuit.

April 11, 1905.)

1. PATENTS—REISSUE.

The presumption that new matter found in the specification of a reissue patent was omitted from the original through inadvertence or mistake arising from the fact of the granting of the reissue, is prima facie only, and merely places the burden of proof upon a defendant contesting the validity of the reissue.

2. SAME—VALIDITY OF REISSUE—MACHINE FOR ORNAMENTS PICTURE FRAMES.

The Adams second reissue patent, No. 11,980 (original No. 642,059,) for a machine for mounting ornamental composition directly upon circular picture frames, claims 11 to 18, are void as covering a construction not included in the original patent.

JAMES HEEKIN CO. v. BAKER et al.

(Circuit Court of Appeals, Eighth Circuit.

May 22, 1905.

1. PATENTS—INVENTION AND INFRINGEMENT—COFFEEPOTS.

The Lewis patent, No. 650,129, for a drip-coffee pot, embodies a combination which, although of old elements, is new, and discloses patentable invention, in that it accomplishes an old result in a more facile, economical, and efficient way; its chief merit being in its simplicity, its cheapness of construction, and ease of operation. While not for a pioneer invention, and therefore not entitled to a liberal interpretation of its claims, it is entitled to a reasonable range of equivalents; and infringement cannot be avoided by a mere colorable modification of some of its elements, not essentially varying its principles or mode of operation. As so construed, held infringed by the device of the Baker patents, Nos. 710,132 and 710,133.

2. SAME—INFRINGEMENT—COMBINATION.

Infringement of a patent for a combination is not avoided by omitting one element of the combination, where such element is essential to the successful operation of the alleged infringing device, and it is intended that it or its equivalent shall be supplied by users.

MORRIN v. ROBERT WHITE ENGINEERING WORKS.

(Circuit Court, E. D. New York. May 10, 1905.)

1. PATENTS—INFRINGEMENT—RECONSTRUCTION OR REPAIR.

The rule as to the right of a purchaser of a patented combination to supply parts, of his own authority, from a generalization of the authorities, would seem to be that he may replace an element of the combination (1) when its consumption was the very purpose of the device; (2) when its use upon external objects must work its early destruction; (3) when it was intended to be destroyed and was destroyed after a single use, and became waste material; (4) when, in the arrangement of an element, not the chief element, it is so fashioned and placed as to be specially subjected to external forces that make it peculiarly liable to breakage and wear; (5) when it is not the chief part of the combination; (6) when it is an ordinary working part, like a cam in actuating machinery, although specially adapted for the proper operation of the device, and even though it is the most essential element in the combination. But an element may not be replaced when it is the vital element of the combination in fact, and in regard to patentability, especially when it is not intended to be of short life by the action of external forces thereon.

2. SAME—RECONSTRUCTION OF VITAL ELEMENT OF COMBINATION.

Complainant was the owner of a patent for a steam generator, consisting of an upright cylinder or shell provided with tiers of generating tubes, of peculiar shape, which constituted the vital and patentable element of the structure. Such tubes constituted

about one-third in value of the completed structure, and were ordinarily subject to injury only from the action of the water, the same as the shell, though perhaps to a greater extent. Defendant, under contracts with purchasers of the patented generators, practically refitted the same with new tubes; some of the old ones having become useless. Held that such refitting was not an authorized repairing of the patented structure, but a reconstruction, which constituted an infringement of the patent.

3. SAME—STEAM GENERATOR.

The Morrin patent, No. 463,307, for a steam generator, held infringed by defendant by a reconstruction of the tubes, which constitute the patentable element of the combination, in generators which had been sold under license from the patentee.

LAMBERT SNYDER VIBRATOR CO. v.

MARVEL VIBRATOR CO.

(Circuit Court, S. D. New York. April 29,

1905.)

1. PATENTS—SUIT FOR INFRINGEMENT—PRELIMINARY INJUNCTION.

The fact that a patent has not been adjudicated is not sufficient ground for refusing a preliminary injunction against its infringement, where that is clear, unless there is a substantial question as to its validity.

2. SAME.

The Snyder patent, No. 773,234, for a vibratile apparatus, held valid and infringed as to claim 1, on a motion for preliminary injunction.

SHEPHERD v. DEITSCH et al

(Circuit Court, S. D. New York. March 9, 1905.)

1. PATENTS—SUIT FOR INFRINGEMENT—PARTIES.

A personal license granted by a patentee to manufacture and vend the patented article, which reserves the right to license one other, and also binds the patentee to prosecute infringers, does not operate as an assignment, and the licensee is not a necessary party complainant in a suit for infringement.

2. SAME—VALIDITY—SUFFICIENCY OF DESCRIPTION.

Where a patentee has pointed out such features as he claims are his invention with sufficient clearness to enable them to be understood by those skilled in the art, the law affords him protection.

3. SAME—INFRINGEMENT—BRUSH.

The Shepherd patent, No. 601,405, for a brush having a reticulated back, the openings extending through between the rows of bristles, having the greatest diameter at the rear of the brush "and decreasing in diameter to the face thereof," the object being to facilitate the cleaning and drying of the brush, was not anticipated, and discloses an improvement of utility. While limited by the prior art, it is not to be so restricted as to require the openings to decrease in diameter continuously from the back to the face of the brush, but is entitled to a fair range of equivalents. The essential feature of the invention being to leave the larger amount of material on the side of the back in which the bristles are inserted, the beveling of the openings at the back, so that they are wider there than on the face, is within the patent, and such construction infringes.

4. SAME—ABANDONMENT OF APPLICATION.

The failure of an applicant for a patent to further prosecute his application after it has been rejected by the examiner for anticipation does not operate as an abandonment of the invention, nor an acquiescence in the ruling, where it was caused by his lack of funds.

BAKER v. CRANE CO.

CRANE CO. v. BAKER.

(Circuit Court of Appeals, Seventh Circuit. April 11, 1905.)

PATENTS—ACCOUNTING FOR INFRINGEMENT—PATENTED IMPROVEMENTS.

On an accounting for damages or profits for infringement of a claim of a patent covering an improvement on an existing device, it is incumbent on complainant to show how much of the profit made by defendant on the entire article was due to the patented improvement, or, in case of damages, how much of complainant's loss was due to such improvement.

JONES et al. v. DAVIS et al.

(Circuit Court of Appeals, Third Circuit.

May 19, 1905.)

PATENTS—INFRINGEMENT—MINERS' LAMP HOLDER.

The Lattimore patent, No. 415,720, for a lantern holder to be attached to miners' caps, claim 1, distinctly and clearly describes the device claimed, which includes a "forwardly projecting top piece" having an eye for the inner end of the lantern hook, and cannot be enlarged by construction. It is not infringed by a device in which the front piece stands out from the front of the cap, and the top piece, having the eye for the lantern hook, projects backwardly.

KAHN et al. v. STARRELS.

(Circuit Court, E. D. Pennsylvania. May 16, 1905.)

PATENTS—VIOLATION OF INJUNCTION AGAINST INFRINGEMENT—CONTEMPT PROCEEDINGS.

A defendant held in contempt, on the evidence, for violation of a permanent injunction against infringement of a patent.

MYGATT v. ZALINSKI et al.

(Circuit Court, S. D. New York. May 17, '05.)

PATENTS—DESIGNS—LAMP SHADES.

The Mygatt design patent, No. 32,685, for a design for a lamp shade or reflector, discloses novelty and invention, and is valid. Also held infringed.

KLINE CHAIR CO. v. THEO. A. KOCHS
& SON et al.

(Circuit Court, S. D. New York. May 26, '05.)

PATENTS—INFRINGEMENT—DESIGN FOR CHAIR.

The Kline design patent No. 26,623, for a design for a chair, held valid, but not infringed.

AUSTRALIAN KNITTING CO. v.
GORMLY.

(Circuit Court N. D. New York. May 23, '05.)

1. PATENTS—SUIT FOR INFRINGEMENT—RES JUDICATA.

A decree of a Circuit Court sustaining the validity of a patent, and awarding a permanent injunction against infringement, and referring the case to a master for an accounting as to damages and profits, is interlocutory, merely, and not final, and is not conclusive of the validity of the patent in a subsequent suit between the same parties prior to the rendition of final decree in the cause, although, on appeal from such interlocutory decree, it has been affirmed by the Circuit Court of Appeals.

2. SAME—PERSONS BOUND BY DECREE.

A manufacturer of an alleged infringing article, who voluntarily assists a purchaser from him in defending a suit for infringement of the patent by the use of such article, but who is not a party to the record, and is not shown to have assumed control of the defense, is not directly interested in the case, and is not concluded as to the validity of the patent by a decree in favor of the complainant, so as to be estopped thereby from setting up new defenses in a subsequent suit against him for its infringement by making and vending the same article.

3. SAME—PRIOR USE KNITTING MACHINES.

The Kinsey patent, No. 424,314, for a burr-wheel for knitting machines, is void for prior public use of the alleged invention by others.

AMERICAN WRITING MACHINE CO. v.
WAGNER TYPEWRITER, CO.

WAGNER TYPEWRITER CO. v. WYCKOFF, SEAMANS & BENEDICT.

(Circuit Court, S. D. New York. March 10, 1905.)

1. PATENTS—INFRINGEMENT—STOP MECHANISM FOR TYPEWRITING MACHINES.

The Schulte patent, No. 450,592, for an adjustable mechanism for making column stops on a typewriting machine, claim 9, covers only the particular mechanism disclosed. As so construed, held not infringed.

2. SAME.

The Gathright patents, No. 436,619, claims 4 and 5, No. 452,268, claims 6 and 8, each covering mechanism for making column stops on a typewriting machine, construed, and held not infringed.

MECHANICAL INVENTIONS AND DESIGNS

Patents for which have been procured
through the Patent Soliciting Office
of E. G. Siggers, Patent Lawyer,
Washington, D. C.

Selwyn Wyles, Nauvoo, Illinois. Coupling for Whiffletrees.—It is the aim of the present invention to provide a whiffletree coupling for pivotally mounting singletrees on doubletrees, and for connecting the latter with the tongue of a vehicle. The coupling is adapted to lessen the tendency of whiffletrees to tip forward. The device comprises a pair of plates pivoted at the back and provided with sides or flanges arranged in pairs for embracing the parts to which the coupling is applied. One of the plates is provided with an arcuate front edge and has horizontally projecting extensions forming stops, and the other plate has a hook-shaped tongue which embraces the arcuate edge between the stops and interlocks the plates.

William Parker, Tecumseh, Nebr. Earth Auger for Erecting Telegraph and Telephone Poles.—The machine of this patent is adapted to be conveniently transported at regular intervals along the line of erection for the successive erection of the poles. Its several parts are driven by a motor, which is mounted on a wheeled platform. A derrick, which rises from the platform, is provided with a vertically movable cross head, which is elevated by the motor. The auger is raised and lowered by the cross head, and is rotated by the motor for excavating a hole for a telegraph or telephone pole.

Fred L. Smith, Beatrice, Nebraska. Gate Hinge.—This hinge, which is designed particularly for use on farm gates, permits a gate to be arranged at different elevations, either to afford a passageway for small animals or to enable the gate to clear snow and other obstructions. The gate swings freely in any adjustment. An elongated pintle rod is arranged in bearings of a hinge post or other support, and it is adjustably gripped by a pair of clutches mounted on the gate and consisting of simultaneously-operable cams, which are positively maintained in engagement with the pintle rod by the weight of the gate. The cams are swung out of engagement with the pintle rod by an operating lever, and are automatically carried into engagement with the rod by a coiled spring when the lever is released by the operator.

Leonard C. Notbohm, Rome, Wis. Combined Box and Barrel Cart.—The cart of this patent is adapted to be readily converted either into a box or barrel cart without removing or detaching any of the parts, with the exception of the end gate, which is replaced after a barrel has been placed upon the support. The body of the cart has a movable bottom section, which is swung upwardly to provide a barrel-receiving opening. The axle is arched or bent at an intermediate point to provide a support for the barrel. This support, which is held in an elevated position when the body is arranged to form a box, swings downward beneath the barrel-receiving opening when the movable section of the bottom is raised. The rear cleat at the bottom is hinged, and is adapted to swing outward to permit the cart to be backed against a barrel, which is tilted or raised to permit the arched portion of the axle to swing beneath it. The bottom cleat is then closed and locked to confine the barrel on the support.

William Royal Lott, Navasota, Texas. Stretcher.—The wire stretcher of this patent is designed for stretch-

ing fence wires both in the construction of fences and when repairing the same. It is adapted to be fulcrumed on a post or other support, and is capable of exerting great power to stretch and hold a fence wire for stapling or otherwise securing the same to a post. It is especially advantageous for drawing the ends of a broken wire together to splice the same, and it will extract staples without twisting or breaking them. It will enable barbed wire to be picked up from the ground and stretched across a post without the hands of the operator coming in contact with the barbs. The wire stretcher consists of a lever provided with a pointed end, and a pair of hooks hinged to the lever at diametrically opposite sides and at different points along the lever.

James J. Schofield, Martinsville, Ind. Wagon Brake.—The present invention provides means for quickly carrying a pair of brake shoes clear of the wheels in throwing off the brake, and when the brake is applied, the fulcrum of the operating lever is automatically changed to cause great power to be brought to bear in operating the brake. The operating lever is mounted on a movable support, which is adapted to gradually advance the fulcrum point. The support is also provided with a fixed fulcrum arranged in the path of the operating lever, in position to be engaged by the lever at a point between the pivoted end thereof and the point of attachment to the connecting rod, and the power of the lever is thereby increased.

John W. Smith, Shirley, W. Va. Rail Joint.—The device of this patent provides effective means for locking the bolts and nuts of a rail joint against accidental unscrewing, and the locking means does not necessitate any change in the construction of the nut, and the threaded portion of the bolt. One of the fish plates of the rail joint is provided with exterior nut-receiving recesses, and a locking bar, which is fitted against the other fish plate, has polygonal openings. The bolts pass through perforations of the fish plates, and their nuts are arranged in the said recesses, and are thereby held against rotation. The heads of the bolts engage the other fish plates, and are arranged in the openings of the locking bar. The locking bar is secured in position by fastening devices, which pass through the heads of the bolts.

Thomas M. Day, inventor; John W. Riffe, assignee, Windfall, Indiana. Vending Machine.—The subject matter of the patent is a device particularly intended for vending cigars, wherein it is necessary to deliver the cigars from the original package as required by the Internal Revenue laws. The package is so constructed that it will constitute the holder for the cigars during transportation, and may be opened and placed in the machine so as to fully expose the same to the purchaser. The machine comprises a casing, a support arranged therein, and a plunger slidably mounted in the support, the cigar box being removably mounted on the support and comprising side and end walls, also a top and bottom that connects the end walls. The side walls terminate short of the body to provide aligned openings in the opposite walls of the receptacle, which openings are disposed in alignment with the plunger. Suitable coin controlled mechanism is employed for effecting the movement of the plunger to secure the delivery of the cigars.

Levi Wismer, Isaiah Wismer, Port Hope, Michigan. Feed Water Heater.—This patent covers a feed water heater, which also serves as a scale catcher for preventing organic matter and other impurities contained in

water from entering a boiler. A tank or casing is arranged at one side of the boiler, and is provided with a concave bottom to conform to the configuration of the boiler, and also provide a narrow tapering depending pocket or trap. The inlet and outlet pipes are connected with the tank or casing at the upper portion thereof, so that water will be supplied to, and withdrawn from, the casing or tank without agitating the contents of the pocket or trap. A valve is provided at the bottom of the pocket to blow off the impurities when desired.

Hillman A. Parson, Republic, Iowa. Bolt Holder.—The object of the invention is to provide a device for holding the bolts of plowshares while the nuts are being screwed on and off. The device, which is capable of automatically locking itself in position, may be quickly transferred from one bolt to another, and will afford ready access to the nut operated on, so that an ordinary wrench may be employed for tightening and removing nuts. It embodies an open frame having a top and bottom to receive between them the plowshare or other part to be operated on. The top is provided with means for engaging the same, and the bottom is provided with means for engaging the head of a bolt. A cam lever, which is fulcrumed on the frame, actuates the bolt engaging means, and an automatically operable dog is arranged to lock the cam lever in its adjusted position.

William C. Mason, Pasadena, Cal. Fruit Tree Extracting and Transporting Device.—It is the aim of this invention to provide a device for either permanently moving or transplanting trees, and it enables the necessary force to be applied for extracting a tree from the ground, and after the tree has been extracted, it conveys the same from one point to another. The tree extracting and transporting device is provided with a truck frame mounted on wheels and constituting a lever for extracting a tree. This truck frame embodies an axle, converging draft bars connected with the bottom of the axle, and brace rods which extend from the outer portions of the draft bars to the top of the axle. An inclined platform is arranged on the brace rods and is supported by the axle and the draft bars. The truck frame is arranged in a vertical position contiguous to the tree to be extracted, and a team is hitched to its upper end. The tree is quickly uprooted by swinging the truck frame downward to a horizontal position.

Edgar W. Hopper, Wells, Mich. Saw Mill Set Block.—This invention covers an ingenious construction, designed to take the place of the ratchet mechanism usually employed for advancing the knees and the springs for receding the same. It enables the knees to be gradually advanced by steam or other fluid under pressure, and to be quickly moved backward after a log has been sawed into lumber. The mechanism employed consists of a cylinder having a hollow piston with interior screw threads, a rotary screw extending into the piston and connected by gearing with the set shaft. Worm gearing is employed for accurately controlling this movement.

Alfred A. Bayless, Frankfort, Ind. Ladder.—This invention provides improved means for securing the connecting pieces or steps to the side bars of a ladder, the heads of the screws or other fastening devices being arranged out of the way without weakening the side bars. Each side bar of the ladder is provided on its outer side with a longitudinal groove, and has transverse grooves on its inner side. The longitudinal groove receives a channel bar, which reinforces the side bar, and provides a groove or space to receive the heads

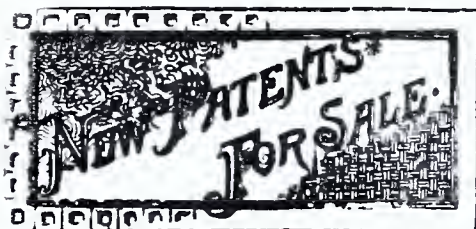
of the screws or other fastening devices, which secure the connecting pieces or steps in the transverse grooves. The channel plate is also firmly interlocked with the side bar by means of inwardly diverging side flanges, which are embedded in kerfs provided in the side bar at opposite sides of the longitudinal groove.

John B. Paradis, Biddeford, Maine. Funnel.—The funnel of this patent is adjustable for filling bottles and other receptacles having necks of different lengths. It is provided with a valve for controlling the flow of liquid from the bowl to the spout, and it has means for venting the spout to prevent any liquid remaining in the same after the valve has been closed. The funnel is provided at the bottom of the bowl with a valve seat, and the valve, which has an opening, is also provided with a hollow stem forming a vent tube and extending from the seat to the top of the bowl. A guide tube pierces the funnel and receives a rod, which is connected with the upper end of the hollow stem. An exteriorly arranged stopper is connected with the lower end of the rod. The stopper has an inner elastic clamping sleeve, and is provided with an outer conical engaging portion adapted to fit tightly in the neck of a receptacle to prevent the escape of liquid and gas at that point.

Miss Rhoda Anna Sanders, Flint, Mich. Cover for Pots and Kettles.—The cover forms a strainer, and is designed for use on various receptacles to retain the solid contents within the same while draining off the water of other liquid contents, and it prevents the hands of the person using it from coming in contact with hot liquid. A portion of the cover is perforated to form the strainer, which may be covered by a pair of sector-shaped closures. The cover is securely fastened on a vessel by means of slidable catches mounted in guides and having outer engaging portions. The inner ends of the catches are bent upward to form handles, and locking devices are mounted on the inner portions of the handles in position for engaging the guides, whereby the outer ends of the catches are positively held in engagement with the vessel.

George W. Scott, Sadler, Texas. Suspenders.—This invention enables suspenders to be made of inelastic material, and at the same time prevent them from tightening upon the back, shoulders or breast while a person is stooping or sitting, and it thereby relieves the trousers of strain, and of all liability of having the buttons pulled off by such movements of the body. The suspenders are composed of two main straps, which extend over the shoulders and cross between their ends at the back. The front ends of the straps are provided with means for connecting them to the front of a pair of trousers at the center thereof, and their rear ends have means for connecting them also with the front of the trousers at the sides thereof. Supplemental rear straps or tabs connect the rear portions of the main straps with the back of the trousers.

Mrs. Rosa A. Ingalls, Washington, D. C. Combined Diaper Fastener and Hose Supporters for Infants. The object of the present invention is to provide a device to fasten an infant's diaper, and also to support the hose or stockings without interfering with the free movement of the limbs of a child. A large safety pin is employed for fastening the diaper, and it is connected by chains with a pair of small safety pins, which are secured to the stockings. The sides of the safety pins are coiled to provide exteriorly arranged projecting eyes, which are linked into the ends of the chains. Any one of the safety pins may be unfastened without removing the other safety pins.



Advertisements inserted in this column for 15 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—New patent recently issued. No. 799,927. Will sell or lease on royalty. For full particulars address, O. H. Nebel, Box 73, Worthington, Minn. feb

FOR SALE—I own the best adjustable cow poke ever invented. Will sell patent or contract on royalty. Sells at sight. Address, W. J. Stewart, No. 351 N. Topeka Avenue, Wichita, Kansas. feb

FOR SALE—Patent No. 770,756, dated Sep. 27, 1904. Displaying Device. Will sell outright or lease on royalty, or sell state rights. For particulars address, P. J. Hynek, Box 3, Shawnee, Oklahoma. feb

FOR SALE—U. S. Patent No. 804,127, dated Nov. 7, 1905. Improved rail or other joint, without nuts or bolts, or fishplates. Correspondence with inventor, W. J. Huckabay, Sparta, La. feb

FOR SALE—Patent No. 804,106, dated Nov. 7, 1905. Combined fire place and stove. Can be arranged within or without a fire place, and may be used with either wood or coal. Correspondence solicited. Address, Walter A. Douglass, Pilot Mountain, N. C. feb

FOR SALE—Patent No. 801,896. The anchored cement fence post. Guaranteed to be the best cement post made. Will not pull up; neither will it freeze out. Price \$10,000 outright. \$1,000 for state rights. Address, E. McDaniel & W. R. McCallister, Paris, Illinois. R. F. D. No. 5. feb

FOR SALE—Patent No. 798,787. Automatic Buoy for locating the whereabouts of sunken ships. The attention of the Marine Underwriters and Salvage and Wrecker Co's. is called to it; also the Navy Department. Address, Archibald Hattan, No. 11 Charles Street, Kingston, Canada. feb

FOR SALE—Patent No. 804,171, dated Nov. 7, 1905. Double Row Cultivator for tilled corn. Works on three rows at once. Something entirely new. Easy handled, light running. Made by a practical farmer. Address, James B. Proskovec, Jr., R. F. D. No. 1 Bruno, Nebraska. feb

FOR SALE—Patent No. 798,953, dated Sep. 5, 1905. Safety Stirrup for saddle. Very simple and strong, and always ready to release the foot when required. Address, C. F. E. denburg, No. 34 2nd. Avenue, Spokane, Wash. feb

FOR SALE—Patent Vehicle Top Supporter, for buggy top to rest on when down to prevent the bows from bending or breaking. Will sell all or a part interest. Address, D. B. Cain, Yoakum, Texas. feb

FOR SALE—After many years of research in the domain of physiological acoustics, I have succeeded in devising the most perfect artificial aid to hearing ever constructed. Patent No. 799,659, dated Sept. 19th last. Address, G. G. Lewis, 600 University Bldg., Syracuse, N. Y. feb

FOR SALE—Patent on cream can submerger for holding cans from tipping over when submerged for cooling purposes. Will sell shop, town, county, or state rights. Agents wanted. Address, Louis Kleiber, Box 21, R. F. D. No. 4, Berlin, Wis. feb

FOR SALE—Patent No. 672,897, dated August 30, 1901. Closure for mail sacks. Simple and durable, applicable to all types of sacks. Meets the wants of the postal officials. Address, J. H. Guttner, Muir, Ky. dec

FOR SALE—Canadian patent No. 91,335. An entirely new tensioning device for buck, hack-saws, etc. Tension relieved when not in use. Fits any saw; saves the frame. Will sell patent or lease on royalty. Address, D. R. Klassen, Gretna, Man, Canada. dec

FOR SALE—U. S. Patent No. 795,477. An improved rail joint, without nuts or bolts. The greatest invention and device ever brought before the public. Manufacturers of R. R. devices especially invited to correspond with the inventor. Address, C. M. Bennett, No. 1751 Main St., Wellsville, Ohio. dec

FOR SALE—U. S. Patent. Improvement on plows and heel sweeps. A plow and heel sweep that will not turn on heel bolt, making them self-supporting. Will save two-thirds of heel bolts now in use. Will sell outright or by states or on royalty plan. Address, Richard P. Rodgers, R. F. D. No. 3. Spartanburg, S. C. dec

FOR SALE—Patent No. 798,084 dated Aug. 29, 1905. Spindle roller for looms. The greatest money saver for manufacturers ever invented. Address, Charles F. Thompson, Box 452, Oswego Falls Station, Fulton, N. Y. dec

FOR SALE—Patent No. 796,071, Aug. 1, 1905. Poultry Folding Coop. Perfect folding done easy and quick. Will sell cheap or lease on royalty. Address, H. R. Franke, Breham, Texas, R. No. 8. dec

FOR SALE—Patent No. 777,443, dated Dec. 13, 1904. Calf Weaner. Self-adjustable. Considered the best calf weaner on the market. Will sell outright, or state rights. Can be manufactured very cheap. Price for same O.K. Address, A. N. Sorenson Co., Gustave, S. D. dec

FOR SALE—Canadian Patent No. 89,283, also No. 91,802. Fence Stays. Simple and strong. Can be re ailed at an average cost of ten cents. Address, J. M. Sutherland, Sioux Falls, S. D. dec

FOR SALE—Patent recently issued. Almost every home uses from ten to fifty. Has no equal. Simple. No new machinery needed to manufacture same. A splendid investment. Address, E. B. Orr, East Liverpool, Ohio. dec

FOR SALE—Patented No. 794,328. End gate for wagon beds, dated July 11, 1905. A rodless wagon end gate. Will sell for \$5,000. Address, Henry Weber, Fairbury, Ill. feb

FOR SALE—Patent No. 787,734. Vegetable Cutter, dated April 18, 1905. Has no equal on the market, and is a success. Will sell only for cash, or outright sale. Address, J. J. Drong, Box No 155, Browerville, Minn. jan

FOR SALE—Patent No. 791,298. Ratchet Monkey Wrench. Can be set at any angle, to make right, left, or end wrench. Can turn up nut with ten-inch wrench in a five-inch circle. Will sell patent outright or assign the right to manufacture the invention. Address, Theo. F. Ayres, Allentown, Pa. dec

FOR SALE—Patent No. 799,729. Hay Press. Have pressed thirty bales an hour with one horse. Presses can be made for \$25, and will sell for double that amount. Address, Albert Hailey, Ruston, La. dec

FOR SALE—Patent No. 789,062, dated May 2, 1905. The most practical strainer for milk and other liquids that has been devised. Address, Arah W. Prescott, Manchester, N. H. dec

FOR SALE—Patent No. 783,862 dated Feb. 28, 1905. Hapgood adjustable folding bias measure. Circulars sent on application. Offers solicited. Address, Miss Alice L. Hapgood, Bellows Falls, Vt. oct

FOR SALE—Patent No. 793,170, dated June 27, 1905. Attachment for animal traps to lift the animal from the ground when caught. Will sell outright or lease on royalty. Address, Charles Baer, Mendon, Michigan. dec

FOR SALE—Patent No. 794,870, dated July 18, 1905. Automatic Mail Box. Perfect in every detail. Operates independent of carrier. Is sure to meet the approval of carrier and patron. Will sell cheap. Address, G. E. Lofland, Urbana, Indiana. dec

FOR SALE—Patents No. 774,693. Steering Apparatus for Ships, issued Nov. 8, 1904; and No. 755,928, Heat Regulator, March 29, 1904. Address, John Peterson, Lake George, N. Y. dec 05

WANTED.

WANTED—Patent No. 793,856, dated 1905. Infants' Toilet Box. Leather covered box—apartments for all articles—needed for bath—trays for cloth and safety pins. Suitable for lady's satchel or home use. Address, Study Box Company, 624 E. Wayne St. Fort Wayne, Indiana. jan

INVENTORS OF SHEET METAL, WIRE AND PLASTIC MATERIAL GOODS.

The Wiet-Goethe Company of Sacramento, California, owns the best tool room and plant on the Pacific Coast, for the manufacture of goods made from sheet metal, wire and plastic materials. It makes a specialty of the manufacture of patented articles only, and will be pleased to receive from inventors, particulars of articles of this character. The plant is fully equipped in every particular, and offers to the inventors an unusually good proposition. This will largely apply to men of small capital, who in this way, can command the services of a plant, which could not be duplicated for thousands of dollars. Address, Wiet-Goethe Company, Sacramento, California.

Drawings for Inventors.

If you want copies of the drawings of your patent, we can procure them at these prices:

12 copies, each sheet full size (8x13)	\$ 2.50
25 " " " " " "	3.50
50 " " " " " "	4.50
100 " " " " " "	7.00
500 " " " " " "	13.00
1000 " " " " " "	17.00

12 copies, each sheet reduced 1/3 (8 1/3 x 5 1/4)	\$1.25
25 " " " " " "	2.00
50 " " " " " "	3.00
100 " " " " " "	4.00
500 " " " " " "	7.50
1000 " " " " " "	9.00

These copies will be made by the photo-lithographic process, by the firm which formerly attended to the Patent Office work, and will be equally as good as the drawings accompanying your letters patent. Five hundred copies of your patent would cost you at least \$25. We can furnish 500 copies of the drawings, if contained on one sheet, for \$13 full size, or \$7.50, if reduced one-third, the same reduction as your letters patent drawings. Your valued orders solicited.

The Inventive Age Publishing Company,
WASHINGTON, D. C.

INVENTORS' DESIGNER AND DRAFTSMAN.

C. E. F. AHLM,
CONSULTING ENGINEER,
WILLIAMSON Bldg., CLEVELAND, O.
ELECTRICAL AND MECHANICAL EXPERT.

A NEW BOOK FOR INVENTORS.

Patents and How to Make

Money out of Them.

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trademarks and copyrights. It also tells accurately how and what to invent, how to sell inventions, place them on the market, interest capital in them, and to successfully promote a stock company. It also contains an index of forms worth double the price of the book, to any one interested.

ELEGANTLY CLOTH BOUND.

GOLD STAMPED. \$1.00 Postpaid.

Sent with one subscription to AGE for \$1.75.

Or will sell separately.

Address—The Inventive Age Pub. Co.,
918 F St., N. W. WASHINGTON, D. C.

Bee-Keepers

Should all subscribe to

THE AMERICAN BEE-KEEPER,

(Established 14 years.

50 cents per year.)

The best magazine for beginners. We will send it **Six Months on Trial for 20 cents.** Sample copy free.

Address:

The American Bee-Keeper, Falconer, N. Y.

It is published by the

W. T. FALCONER, MFG. CO.

One of the oldest and largest makers of bee-keepers' supplies. Catalogue free.

Magic Rheumatic Cure!

It absolutely does cure. It is not a cheap remedy but it is a cheap cure. Mark the distinction! There are a thousand remedies to one cure. This is A CURE. It costs \$2.00 a bottle, and is worth \$20.00 to any sufferer. Sold only by our authorized agents or direct of us. Send for circular. Agents wanted.

MAGIC CURE CO.

R. 313-315 Dearborn St.

Chicago.



Attention Inventors!

LISTS OF MANUFACTURERS FURNISHED.

We have increased our facilities for furnishing lists of manufacturers, and now cover every line of industry.

Our charge for each list is one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad will be inserted three times.

THE INVENTIVE AGE PUBLISHING Co., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.....

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

The Inventive Age

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 918 F Street, N. W.,
WASHINGTON, D. C.

The INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND A HALF.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

The INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 15 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,
WASHINGTON, D. C.

Entered at the Post-office as 2nd class matter.

WASHINGTON, DECEMBER, 1905.

The Patent Office.

The work of the Patent Office continues at a standstill so far as the total number of applications awaiting action; but otherwise considerable progress is being made in the official actions on amended applications, with the result that now about one-half of the divisions of the Patent Office are within one month in the consideration of such applications. On the other hand, in new cases, there is one division which is now considering applications filed in March, 1905; one which has under consideration applications filed in April; three are considering applications filed in May; three are considering applications filed in June; five, applications filed in July, and so on. One division has 966 applications awaiting official action.

While the work of the past year has been unprecedented, the conditions at the Patent Office are attributable not wholly to this cause. The number of resignations of old and experienced employees has been large, and this has hampered the work very much. Difficulty has been experienced in securing new examiners. All appointments are made under the civil service. There are plenty of applicants, but the number who pass the examinations are few. There are at present a score of vacancies in the examining corps. It takes over a year for a young man to make himself useful in the Patent Office in examining applications; and if he is capable and bright, it is not long before he attracts the attention of some attorney on the outside, or some manufacturing concern, and at the time when he is becoming valuable to the government, out he goes to accept a position paying double the salary he has been receiving.

It is a well known fact that in those positions under the government requiring brains and skill, the salaries are not commensurate with the duties. In the minor positions, such as copyists, messengers, janitors, watchmen, laborers, the pay is good, the hours

are short, the work light, and consequently those positions are sought after and are never given up. It is different with the positions in the Patent Office. The examining corps is constantly changing, and there is probably no bureau under the government, where so many men leave voluntarily. The only way to remedy this evil is to increase the salaries of examiners. Yet Commissioner after Commissioner has tried this for years, and has pleaded with Congress for an increase in the pay of examiners, without accomplishing anything. The Patent Office would be better up in its work today, if it were not for the fact that the examining corps has a number of vacancies to be filled: a number of new men are being broken in, and quite a few old and experienced examiners have gone into private business, where they can make more money than the government pays them. The pay of an examiner seems large; but when it is remembered that one has to reside in Washington to obtain it, and that Washington is the most expensive city to live in, outside of New York, the position does not loom up so attractively. Quite recently the Secretary of the Treasury investigated the clerks in his department, and found that few of them had saved a competence by their work under the government; many of them being in arrears. What, with the increased hours of labor, the penalty of instant dismissal without notice, and other restrictions which have been imposed by the present administration, the position of the government clerk, including the examiners of the Patent Office, is not particularly inviting. It is not to be wondered at that the resignations are on the increase.

The Proposed Amendment of the Trademark Law.

A determined effort is being made by the U. S. Trademark Association, composed of prominent manufacturers throughout the country, to amend the trademark law enacted by the last session of Congress, by incorporating therein a provision making the counterfeiting, or unlawful imitation of a trademark, a penal offense. The November 1905 bulletin of the association contains a strong article discussing the need of such a law. It furnishes interesting reading.

In the course of the agitation of several years which preceded the passage of the act of 1905, the matter of providing by criminal remedies for the punishment of counterfeiters and infringers of trademark rights, was repeatedly pointed out and quite commonly conceded. The Commission, which was selected by Congress to revise the trademark laws, reported in 1902 to Congress a proposition for the amendment of the law relating to trademarks, and embodied in its report a recommendation for the enactment of a law providing such remedies. In the general discussion which followed, it was admitted that some punishment for the violation of trademark rights would be desirable. Notwithstanding these facts, however, advocates of a revision of the trademark law generally refrained from urging legislation of this character, upon the ground that the incorporation of such provisions in a general revision of the trademark law, would endanger and possibly prevent the passage of the entire measure.

It was from such motives of prudence as this that all penal provisions were omitted from the act of 1905. But whatever propriety there may have been in omitting such provisions in the first instance, now that the law has been passed and become effective, the proposition to add the penal provisions to the law cannot, in any way, imperil the results already gained.

An examination of the history of trademark legislation, not only the United States but foreign countries, emphasizes the propriety of such an amendment, and in fact its practical necessity, in order to bring the trademark law of the United States into line with those of most civilized countries. In those states of the United States which have a trademark law, there are penal provisions attached; and in every first, second, and third class country on earth, the laws thereof punish by fine and imprisonment, offenses against trademark rights. This country is distinctly behind on this proposition, and in view of the international bearing of our trademark laws, it behooves Congress to amend the law along the line indicated.

While this is being done, consideration should be given to the propriety of amending the patent laws, so as to make the willful infringement of a patent a penal offense, just as is the case in Germany; for the civil remedy is often inadequate, as we have previously pointed out.

The Mistake of a Judge.

It seems odd that a Justice of the U. S. Supreme Court, the court of last resort, should make such a blunder as Justice Brewer made in an interview published in a Chicago paper, and which has attracted considerable attention. After stating his opinion that "The whole system of the patent laws in this country is quite wrong," he proceeded to explain his meaning, but showed only too plainly that there were some things about the patent law on which he was misinformed. The Judge appeared to think that the government returns the government fees on the rejection of applications for patents, for he said: "A man sends in an application for a patent. He has to pay a certain sum to have the patent granted him. Now if the government finds that he is not entitled to a patent, his fee is returned to him. This is unjust. The government has been put to the trouble of looking up the applicant's right to be granted a patent. The government should be paid for its trouble. It should not refund the money for conscientious work done. On the other hand, if the man is entitled to a patent, the government should charge him nothing for granting it, simply because the government should encourage inventions of all kinds."

Much more was said by the learned Justice along this line, but if the rest is as erroneous as what we have given, it is hardly worth while to quote more. The simple fact is that the government does not return money when an application for patent is rejected. We are surprised that one who holds the position of Justice of the United States Supreme Court should criticize the Patent Office, when he has such an erroneous idea as to what the laws provide. To be a just critic, one should be fully

and correctly informed on the matter discussed. Certainly it is the height of folly for anyone to criticize the patent laws, when it appears from his criticism that he misunderstands them.

Naturally the interview referred to created considerable discussion both within and outside of the Patent Office. We understand that the Commissioner has answered it, but we have not been able to obtain a copy of the answer. The answer should be given as great publicity as the interview; for the latter not only does injustice to the patent system, but it is bound to mislead inventors. We have no doubt that the Patent Office is now flooded with requests for the return of money on rejected applications. Elaborate explanations will be necessary to make many of the disappointed inventors realize that a mistake has been made. All of which shows that even a supreme court judge is fallible, and can err, like common mortals, when he happens to discuss an unfamiliar subject.

The Copyright Office.

The business of filing copyrights keeps pace with the other work of the government. As is well known, the Librarian of Congress has charge of this work. Under him is the Register of Copyrights, and so vast has the business grown, that scores of well-trained clerks have in charge the entering of applications relating to copyright protection.

The issuance of a certificate of entry carries with it no presumption of validity, for the filing of an application is simply the registration of the applicant's claim to protection. Notwithstanding this, every application is not accepted, for many parties apply for copyright protection on articles and things which are not entitled to entry. For instance, applicants frequently seek copyright protection on games, business schemes, trade names, dress charts, music charts, playing cards, and other matter which, if *protectible* at all, should be sought for under the trademark, label, or patent laws. In practice, wherever the application shows on its face that it is not within the legal definition of a book, map, chart, print, cut, engraving, statue, etc., the applicant is duly notified, and his application and fee returned.

Of course it takes time to consider these defective applications and write the reports thereon, and as a result, a good portion of the time of the Copyright Office is taken up in passing upon applications which should never have been presented, and for which no fee is paid.

As might be expected, books head the list in the matter of copyright entries, but the term "book" is so elastic, as viewed by the Copyright Office, that calendars are designated as books.

To give some idea of the work of the Copyright Office during the present year, it may be stated that 23,917 books have been given copyright protection since January 1, 1905. During the same period, 22,713 musical compositions have been entered. In addition to these, there were over 11,000 engravings, prints, and cuts; over 2500 lithographs; over 1200 dramatic compositions; over 1800 maps

and charts; over 1400 photographs; and over 3,000 designs intended to be perfected as works of fine arts. This makes a grand total of over 80,000 applications which were passed upon favorably; still it does not furnish a complete conception of the work of the Copyright Office, for there were many applications required to be considered and reported on, which were not accepted.

It is a fact not generally known that such things as circus posters and advertisements can be protected under the copyright law. Indeed, several years ago, a case went to the Supreme Court of the United States on the question of the validity of copyright protection on a circus poster, and the Supreme Court upheld the copyright, and declared that a circus poster was a good subject for protection under the copyright law. The business of writing advertisements has now become a science, and an attractive advertisement will frequently make a success out of some new specialty. It becomes a matter of importance to the originator of the advertisement, that he should have protection against a competitor in the same line of business. Such protection can be secured under the copyright law, if the application is made in due form, and at the proper time. It is too late to secure the protection after the advertisement has appeared in the newspaper, and herein lies the distinction between the patent and copyright laws. An application for copyright protection must be made before the book, map, chart, etc., has been published. If the application is filed *after* publication, the copyright is invalid. With a patent, an applicant can make an invention, put it on the market for a period of nearly two years, and so long as he files his application within two years, he is safe, provided, of course, that someone does not try to steal his idea in the meantime by filing an application ahead of him.

Copyright protection is almost world-wide, for there is scarcely a country which does not afford protection to its authors and designers.

Egg Membrane to Heal Wounds.

The use of the membrane of eggs in the treatment of wounds was the subject of an interesting lecture recently delivered before the Therapeutical Association of Paris. The lecturer stated that he had for some time noted the good results of placing these membranes upon the surfaces of wounds, and mentioned two cases, that of a girl suffering from a burn on her foot, and a man of 40, with a large ulcer on his leg. Both wounds were in process of healing and were covered with healthy granulations. The surgeon overspread them with six or eight pieces of egg membrane, which was covered with tinfoil and fastened with dry antiseptic bandages. After a few days, the bandages and tinfoil were removed, and it was found that the membrane of the egg had partly grown into the tissues and had assisted in the growth of a good skin, as well as in the process of healing. The cicatrization is not only hastened, but the wound heals exceptionally well and

leaves but few traces. These membranes are procurable everywhere, and their use in this connection, especially for burns which are often obstinate in healing, should attract wide attention.

New Facts About Radium.

Although science is as far as ever from solving the mystery of radium, new applications of the marvelous substance, as well as new facts about it, are discovered from time to time. In a recent lecture before the Royal Society in England, Professor Darwin noted that radium is millions of times more powerful than dynamite. It was estimated that an ounce of radium would contain enough power to raise 10,000 tons a mile above the earth's surface. Another way of stating the same estimate is that the energy needed to tow a ship of 12,000 tons a distance of 6,000 sea miles at 15 knots, is contained in 22 ounces of radium. The professor declared that since the earth contains radio-active materials, and since it was safe to assume that it forms in some degree a sample of the materials of the whole solar system, it was almost certain that the sun is radio-active also.

Among the lesser applications of radium that are of interest is the removal of moles. A ten minute treatment suffices to destroy them. Great care, however, must be exercised in the use of the new remedy.

Hydraulic Cartridges.

A machine designed to take the place of explosives is being tested by a mining company in Canada. It is a hydraulic cartridge, said to have been used with success in England. At present, coal is blown down with powder after the undercutting is effected. In the use of the new device, when the undercutting and shearing are completed, a hole of about 3 inches in diameter is bored in the coal parallel with the roof, and the cartridge is inserted in the same. A piston operates at one end and a pump at the other. The pump forces the water along a tube until it comes in contact with the first piston and pushes it out. The pressure becomes general on all pistons, which commence to penetrate the coal in a downward direction. These pistons are close together, there being hardly a half an inch between them. As the pressure increases, the coal gradually leaves the roof and falls to the floor in good condition to be placed on the market. It is not broken into dust and slack, as is the case when powder is used in blowing it down. This element of waste, it is claimed, is to a great extent eliminated by the use of the cartridge; indeed, its advocates go so far as to state that 40 per cent more salable coal is produced than by the ordinary methods of mining.

Another advantage of the apparatus is that it is not heavy—weighing only some 40 pounds—so that one man can operate it. The quantity of water necessary to work it varies from a pint to a quart, according to the pressure required to bring down the coal. This water is stored in a little reservoir attached to a pipe, and runs to the bottom of the pump. The machine is said to be especially serviceable in long wall and pillar work.

Paper of Aluminum.

Aluminum paper is being manufactured and placed on the market, its special application being as a substitute for tinfoil. It is not the so-called leaf aluminum, but real paper coated with powdered aluminum, and is said to possess very favorable qualities for preserving articles of food, for which it is used as a covering. Chemical analysis has proven that aluminum paper contains but few foreign substances; occasionally it may contain up to 2 per cent of iron, but never any arsenic or other poisonous metals. Hence it appears that the powdered aluminum used for the manufacture of this new paper is relatively pure. The paper used is a sort of artificial parchment, obtained through the action of sulphuric acid upon ordinary paper. The sheets are spread out and covered upon one side with a thin coating of a solution of resin in alcohol or ether. Evaporation is precipitated through a current of air, and the paper is then warmed until the resin has again become soft. Powdered aluminum is then sprinkled upon it, and the paper is subjected to strong pressure to fasten the powder thereon. The metallic covering so obtained is neither affected by the air nor by fatty substances.

Since aluminum paper is much cheaper than tinfoil, it is believed that it will become, when generally known, a strong competitor of the latter.

Fusing by Oxygen.

A new method of fusing by oxygen has been recently demonstrated before experts. By this process, the work of perforating and dividing iron and steel of considerable thickness is reduced to a matter of minutes. The material to be handled is heated to its temperature of combustion, and oxygen at high pressure is then brought to bear upon it. The oxygen is first combined with coal gas, forming an oxyhydrogen flame, with which a part of the metal is heated to red heat. After two or three minutes, the steel begins to burn in this flame, and then the coal gas is turned off, and the oxygen eats its way into the hissing and scintillating metal. The process is said to be of particular advantage for the blast furnace when the blowholes are stopped up with hardened masses. At the demonstration, among other things, a steel block over an inch thick was perforated in about two minutes. The working of the process in the case of copper and iron plates screwed together caused no little astonishment; while the iron melted away, the copper remained intact, the new method being inapplicable to copper.

New Trolley Mechanism.

A trolley and trolley-support has been devised and patented by Arry P. Davis, of Pittsburg, and Christian Aalborg, of Wilkesburg, Pa., assignors to Westinghouse Electric & Manufacturing Company, of Pennsylvania.

The object of the invention is to provide a trolley which will success-

fully collect the current from a trolley-conductor when the car to which it is attached is propelled at a high speed and which will automatically adjust itself to variations in the height of the trolley-conductor without liability of disengagement therefrom. It is also the object to provide means for raising and lowering the trolley and its support and for insuring good contact between the trolley and the trolley-conductor, which may be controlled from the motorman's cab. In the embodiment of the invention, a frame is pivotally supported at one end, and a trolley-bow is pivotally supported upon the free end of this frame. A fluid-pressure actuated piston is provided, also connections between this piston and the frame and between the piston and the trolley-bow, each of the connections having a resilient element whereby the trolley structure is yieldingly supported to accommodate it to different elevations of the trolley-conductor.

A Novel Experiment.

A four wheeled electric truck of the largest type of delivery wagon in New York City, weighing over 7000 pounds, was used recently to close the lid of a watch that had been placed open near the curb. The lid was closed without injuring the watch or even breaking the crystal. The experiment offered a remarkable instance of motor control. The motor used was of two horse power, of the bipolar series type, and has a speed of 6 miles an hour. The giant vehicle, in the trial, dropped slowly off the curb and closed the lid of the watch gently. The same machine was later backed against a 12-inch curb and made to climb it from rest.

Bundle Conveying Means.

Charles R. Hinchman and Max McMurray, of Cleveland, Ohio, are the joint inventors of an apparatus for conveying bundles of wire rod, etc., the patent on which they have assigned to The American Steel and Wire Company of New Jersey.

The invention relates to certain features and arrangements for conveying apparatus of a certain class, which, broadly speaking, may be defined as comprising conveyers constructed and arranged to transport individual objects as contrasted with that class of conveyers which are constructed and arranged to convey material in bulk. The principal purpose for which the invention was designed is to accomplish the automatic transfer of hundles or coils of hot wire rods from the reels of a rod-rolling mill to the wire-drawing mill and the automatic removal of the same at the latter mill from the transferring means. The invention comprises a central longitudinal groove formed in a supporting-surface, a conveyer being arranged to travel longitudinally above this surface, and having pivoted hooks depending therefrom adapted to convey coils of wire or the like. A stationary guide is located between the conveyer and surface, and projections on the hooks are arranged to engage this guide, wherein the hooks will be swung backwardly on their pivots and caused to deposit coils upon the surface.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy; twenty copies \$1.50.—Please give correct data in ordering.—Address,

THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

Issued October 31, 1905.

MECHANICAL PATENTS.

Continued from November Number.

Rails Support and splice for switch D. B. Saow et al
 Railway Electric M. C. Kypinski
 Railway frog J. E. Graham
 Railway of chute. Pleasure W. P. Dameron
 Railway rail brace H. H. Sponeburg
 Railway signal system J. C. Mock
 Railway switch 3 pats F. L. Young
 Railway track 2 pats E. F. Seider
 Railway vehicles and trains. Controlling system for J. L. Crouse
 Railways Automatic emergency air brake operating device for J. P. Birmingham
 Railways. Overhead structure for electric H. P. Davis et al
 Ramming machine J. W. Seaver et al
 Reducing or cutting entrails. Machine for J. Cunningham
 Refrigerating apparatus C. C. Palmer
 Relay Electric I. Kitsee
 Rendering or reducing apparatus E. R. Edison et al
 Rheostat 3 pats G. E. Stevens
 Ring protector A. Davidoff
 Roll holder and shield. Saliva absorbing R. A. Sprake
 Roofing compound C. H. Parker et al
 Roofing tile and tile roof L. J. W. Birn
 Rotary engine J. A. Eaton
 Rotary engine P. Bartoletti
 Rotary engine T. Davis
 Rubbing machine. Stitch and welt R. R. Revare
 Rule. Folding C. E. Keefe
 Rule. Protractor C. W. Lines
 Saddle. Pack J. W. Pullman
 Safety gate for dams S. Scott et al
 Sash fastener I. M. Deppen
 Sash holder and lock F. W. Quilman
 Sash lock J. Kirby, Jr
 Sash lock W. H. Mullins et al
 Sash lock I. F. Frisbee
 Saw Cranial H. C. Masland
 Saw filing device M. F. Roberts
 Saw jointing and sharpening clamp H. M. Wood
 Scaffold hanger M. Cody
 Scale. Platform M. H. Schewie
 Screen A. M. Scheurle
 Screw cutting die A. J. Smart et al
 Seed extracting machine G. Emerson
 Sewing machine attachment P. Robb
 Sewing machine spacing attachment B. L. Chouteau
 Shade and curtain bracket. Double G. W. Wiggins
 Shafts. Lathe attachment for turning crank D. C. Lewis
 Shear gage E. Coggeshall et al
 Shipping box H. P. Guyton
 Shoe fastener A. A. Johnson
 Shoe holder for factory racks W. B. Arnold
 Shoe horn E. Roraback
 Shoe soles. Buffing wheel for refinishing edges of W. B. Arnold
 Shovel H. D. Ward
 Shutters. Automatic device for closing fireproof E. C. Washburn
 Signaling apparatus. Wireless L. de Forest
 Sills. Construction of metal R. V. Sage
 Skate runner T. W. Bryant
 Socket key extension V. B. Fuller
 Soda fountain cooling case W. W. Butler
 Spacing device F. F. Hough
 Spreader Earth and ballast T. R. McKnight
 Spring lid box A. M. Eng ish
 Spring motor F. J. Ehrendreich
 Stalk cutter F. A. Lee
 Steam engine Reversible J. W. Haron
 Steam pipe collar J. Hankin
 Steam trap P. J. Heffernan
 Stereotype and other curved plates. Machine for finishing H. C. MacConnell
 Stone. Conveyor for artificial F. Palmer
 Stone from magnesite. Making artificial M. Gerster
 Stone. Machine for making artificial V. Bueckermann
 Stone. Machine for producing artificial D. McLiray
 Stopping mechanism G. K. King
 Stove. Regenerative J. M. Hartman et al
 Stoves, &c. Fire chamber for N. G. Vosler
 Stoves. Ironing attachment for M. W. Cranmer
 Stoves. Safety device for gas R. R. Callan
 Stuffing box drippings. Device for collecting K. Oehlschlaeger
 Swingletree G. A. Rawhouser
 Switch and signal apparatus and the like. Means for supporting C. Hansel
 Switch operating mechanism C. G. Colwell
 Switch points. Adjusting mechanism for A. Cellner
 Switch tongue throwing mechanism J. C. Wilson
 Table I. Mason
 Table and desk. Combined E. Higgins
 Tanks. Automatic shut off valve for flush W. A. Alexander
 Tappets to stamp stems. Means for fixing F. Anderson et al
 Telephony. Space 2 pats J. S. Stone
 Tire H. G. Fiske
 Tire. Cushion C. G. & W. I. Shaw
 Tire for vehicle wheels C. Motz
 Tire. Pneumatic W. A. Sankey
 Tire puller H. Eichmann
 Tire setter attachment S. E. Tumalty
 Tire tightener G. P. Alten
 Tongs. Clamping and lifting C. W. Zipperer

Tool. Combination W. Scott Jr
 Torch. Gasolene F. Parizek
 Toy. Mechanical A. Paget
 Track sander J. H. Watters
 Traction engine R. Reed
 Train order delivery mechanism J. G. Wilson
 Transmission mechanism H. Tabor
 Tray. Sliding A. N. Harris
 Tree holder R. A. Risk
 Trolley catcher W. W. Annable
 Trolley for electrically propelled vehicles N. W. Storer
 Trolley retrieving device H. B. Clarke
 Trolley wheel bearing R. Kissinger
 Trousers press A. E. Hoppel
 Trunk F. L. Demartini
 Trunks, &c. Corner stay for G. W. Dyarman
 Truss W. Fielding
 Tubes. Machine for producing seamless metallic G. J. Thust
 Turbines. Bucket wheel for elastic fluid R. H. Rice
 Type holder H. Schmidt
 Type writer type bar C. J. Bellamy
 Valve mechanism E. Carl et al
 Valve mechanism. Turbine J. Wilkinson
 Valve. Multiple seat H. Lentz
 Vehicle dash C. R. Patterson
 Vehicle. Motor 2 pats H. P. Moorrees
 Vehicle shaft coupling R. Mulholland
 Vehicle wheel J. M. Carpenter
 Vehicle wheel 2 pats W. J. & J. R. Mitchell
 Vehicles. Footboard support for motor H. A. Krux
 Vehicles. Trottle and regulating device for explosive motor T. B. Jeffery
 Velocipede C. G. Kraiz
 Vending machine F. Davis et al
 Vessel Submarine. 2 pats S. Lake
 Vessels. Air supply apparatus for submarine S. Lake
 Vessels Apparatus for constructing containing E. J. Winslow
 Vessels Ballast apparatus for submarine S. Lake
 Vessels. Ballast device for submarine S. Lake
 Vessels. Engine exhaust for submarine S. Lake
 Vessels Torpedo handling device for G. M. Evans
 Wagon brake C. C. Long
 Wagon. Dumping T. J. Cope
 Wagon seat B. F. Lloyd
 Wall papering machine T. H. Butler
 Warping machine W. C. Keyworth
 Water bag thermometer attachment R. Meyer
 Water connections. Head for B. Rubispierre
 Water heater J. G. Haas
 Water heater, filter, and cooler. Combined S. G. Levson
 Water heater or steam generator T. Suzuki
 Water wheel Current J. L. Weaver
 Wave motor W. P. Clinton
 Weather strip F. N. Stubbs
 Weed destroying means C. G. Bradford
 Weeder and cultivator C. I. J. Barker
 Weighing machine. Automatic F. F. Wear
 Weighing machine combined with automatic sound producing mechanism. C. S. McInire
 Wells. Apparatus for sinking D. Hickox et al
 Welt cutting machine R. E. Tilton
 Whiffletree coupling G. L. Miller
 Whistle. Compressed air F. Heckler
 Window sash lock W. C. Gilbert
 Window sash. Metallic W. H. Mullins et al
 Window screen. Adjustable roller A. J. Baker
 Window shade and curtain bracket W. E. Thomas et al
 Window ventilator R. M. Goehring
 Wire reel O. H. & F. H. Volkerding
 Wire stretcher H. L. Ferris
 Wire stretcher M. T. Shaw et al
 Wires Plug or connection for electric light line C. P. Parnell
 Wood. Channel furnace for treating G. Grondal
 Wrench A. L. Rennet
 Wrench J. J. A. Miller
 Wrench F. Zwicker
 Zinc. Extraction and purification of A. V. Cunningham

DESIGNS.

Badge W. M. Irvine
 Bar fixture 2 pats W. C. Huss
 Box. Handkerchief R. Dey
 Chair A. Karpen
 Clock case T. B. Stephenson, Jr
 Fabric Printed textile 5 pats E. B. Vandergaw
 Fabric. Textile C. F. Richon
 Fabric. Textile 2 pats E. W. Doughty
 Fabric. Textile 6 pats S. L. Crownfield
 Fabric. Textile 6 pats H. W. Fowler
 Fabric. Textile 7 pats H. P. Johnstone
 Fence. Wire H. Ward
 Glass receptacle J. Paul et al
 Glass vessel L. A. Flescher
 Picture frame or base 2 pats S. T. Stuver
 Table F. J. Frey
 Table S. Gronowski
 Vending machine casing H. C. Traute

Issued November 7, 1905.

MECHANICAL PATENTS.

Adding machine E. Ebinger
 Addressing machine J. S. Duncan
 Agricultural implement S. L. Allen
 Air brake mechanism J. Dillander
 Air brake mechanism R. W. Kelly
 Air brake release and signal valve F. H. Dukessmith
 Air brak system F. H. Dukessmith
 Air brakes. Double heading valve device for H. T. Herr et al
 Air compressor 2 pats C. Neumann
 Alloy F. W. Moffett
 Alloy. Making zinc P. & A. Guhrs

Ammonia by synthesis. Making H. C. Wolterbeck
 Animal stock 3 pats H. C. Wolterbeck
 Apron or conveyor. Traveling I. Trolley
 Auger bits. Die for making C. C. Hiatt
 Auger Earth E. B. La Mont
 Auriphone R. W. Goers
 Awning and blind. Combined J. Lang
 Axle box. Car 2 pats A. G. Elvin
 Axle for vehicles. Steering F. A. Law
 Baling press G. E. Rider
 Balloon apparatus. Captive observation R. B. Eubank, Jr
 Banana slitting and peeling mechanism A. Hicks
 Banker T. O. Sharp
 Bath apparatus. Needle S. J. Jackson
 Bearing for car journal boxes reissue
 Bearing metal. Antifriction F. W. Moffett
 Bearing. Roller W. F. Reynolds et al
 Bearing. Vehicle wheel H. C. Peterson
 Bed. Folding H. D. Parlee
 Bed. Invalid B. McM hon
 Bed. Metallic sanitary folding E. J. Baker
 Beet root topping machine A. Pruvot
 Beets. Treating sugar M. Weinrich
 Belt deflector. Polishing E. W. M. Bailey
 Belt fastener J. P. Sarle
 Belting or the like. Manufacturing J. S. Patterson
 Bench leg R. S. Brown
 Bending machine R. A. Carter
 Benzine can J. E. Baker
 Berry box W. C. Miner
 Berths and analogous device. Controlling apparatus for suspending ships W. Whitehouse
 Bicycle fan attachment D. Stahlhut
 Billiard cushion J. S. Patterson
 Billiard table G. A. Ellis et al
 Binder for leaves R. D. Miller
 Binder. loose leaf ledger, and the like. Temporary G. Higginson
 Bit brace H. J. Cook
 Blanket protecting device T. T. Chaloner et al
 Block signal system 2 pats C. E. Bennett
 Blocks, type, and other printing matter in forms. Clamp for securing R. Andrieu
 Blower C. Neumann
 Blowpipe. Gas E. Fouché
 Boat. Life F. W. Brown
 Boat or ship C. P. Leavitt
 Boat spray and water guard 2 pats H. C. Morse
 Boat Submarine H. O. Elane
 Boiler cleaner B. Irwin
 Boiler connection. Superimposed Karl Schmelzer
 Boilers to service condition. Cleaning and restoring A. K. Raymer
 Bolt cutter C. K. Lassiter
 Book for recording scores in contests T. G. Tritt
 Bottle case or crate C. S. Adams et al
 Bottle closure C. C. Smith
 Bottle. Non-refillable T. G. Clifford
 Bottle Nursing F. Herb
 Bottle stopper O. H. Fishburne
 Bottle warmer. Nursing B. L. Gwynne
 Bottle washing machine 2 pats J. A. Prince
 Box fastener G. Klenk
 Brace bit depth gage E. J. Tiede
 Bracket S. B. Kent
 Brake beam H. C. Buhoup et al
 Brake mechanism W. Hefflin
 Brazing compound J. W. Ball
 Brick mold. Building W. Porten
 Brine distributing apparatus for cooling systems F. Ohde
 Briquet making press or apparatus H. A. Steven
 Briquets. Manufacturing G. Hopfner
 Bromo lecithin and making same P. Brigg
 Bronzing machine D. Gardner et al
 Broom attachment G. M. Stewart
 Brooms and brushes. Manufacture of S. G. Roseman
 Brush holder N. C. Bassett
 Brush holder H. G. Reist
 Brush. Tooth W. S. Davenport
 Buckle R. A. Brown
 Buckle T. H. Fiesel
 Buckle T. S. Haley
 Building block mold W. Porten
 Building block mold C. J. W. Hayes
 Burial casket C. E. Myers
 Button G. F. & A. J. Grove
 Button working machine reissue
 Candle and candle wick J. A. Pereira
 Candles. Apparatus for making J. Pereira
 Candles. Making J. Pereira
 Car brake E. H. Miller
 Car brake safety device E. H. Miller
 Car construction. Metallic T. R. Brown
 Car coupling J. A. Frenzel
 Car coupling E. O. Evans
 Car coupling. Automatic W. A. Palmer
 Car extension step. Railway E. Sirois
 Car floor doors. Mechanism for operating A. Campbell
 Car grain door. Railway K. Osel
 Car seat 2 pats J. Applin
 Car switching attachment. Railway 2 pats H. Fenske
 Carbureter. Gas engine O. Minton
 Card and merchandise holder C. O. Chapin
 Card and photograph holder A. S. Carlson
 Cartridge holder. Auxiliary J. T. Brayton
 Cartridges in clips. Machine for assembling O. M. Lissak
 Cash register R. H. Riddle
 Caster F. B. Upton
 Caster. Ball bearing E. W. Fishburne
 Celluloid and the production thereof. Non-inflammable G. E. Woodward
 Cellulose. Manufacturing films or threads of M. Femery et al
 Cement block machine J. I. Hancock
 Cement block machine D. W. Weller

Cement post fastening H. McMaster
 Chain R. A. Carter
 Chart for drafting women's shirts W. McDowell
 Check controlled apparatus J. H. Williams
 Checkrein and holder for same A. E. Fisher
 Cheese cutter W. E. Burks
 Cheese cutter W. R. Montgomery
 Cheese cutter computing device H. F. Dunn
 Chuck P. F. Krug
 Chuck for grinding joint rings W. A. Davidson
 Chuck Lathe W. C. Briggs
 Chute E. Roenius
 Cigar cutter and match lighter. Combined W. F. Herdrich
 Cigarette machine B. Cohen
 Cigarette machine pasting apparatus D. J. Campbell
 Circuit breaker M. B. Field
 Circuit breakers. Trip coil for J. D. Hilliard, Jr
 Circuit for operating signaling devices. Metallic A. K. Andriano et al
 Cisterns and cesspools. Form for making E. H. Osborn
 Clamp W. H. Cleendonon
 Clamp for cross rods. Metal J. C. Russell
 Clay cleaning device H. Diesener
 Clays. Revivifying spent A. B. Lattin
 Clearance indicator W. B. Updegraff
 Clock. Electric L. Agostinelli
 Cloth napping machine E. H. Marble
 Clothes bag G. L. Barrett
 Clothes fastener A. Mathews
 Clutch Friction A. de Dion et al
 Coke extractor J. S. Ham
 Coke oven 2 pats M. E. Rothberg
 Collar F. Hofmeister
 Collar and necktie fastener H. Walters
 Colter clamp E. J. Doolen
 Commoode L. Lotz
 Concrete sewers. Device for forming R. R. Evans
 Concrete walls. Device for building D. A. Milam
 Condenser system F. Ray
 Control system C. W. Larson
 Convertible chair D. T. Matthew
 Conveyor J. L. Causey
 Conveyor and leer. Combined F. A. Shunk
 Conveyor Spiral T. McGrath et al
 Conveying apparatus T. Wallace et al
 Cooking apparatus for cans F. F. Stetson
 Corn compound R. Ditty
 Corn huskers. Alining ear forwarder for C. E. Curtiss
 Corner shield or protector O. Carlson
 Corset and other articles of counterpart construction C. M. Frost
 Cotton picking machine W. B. Edgington
 Coupling J. & J. O. Timms
 Coupling J. O. Timms
 Coupling device H. H. Williams
 Coupling device D. Miller
 Coupling or union A. Meyer
 Crate. Foldable E. M. Averill
 Cultivating tool G. F. Hall
 Cultivator blade J. S. Harlow
 Cultivator. Listed corn J. B. Proskovec, Jr
 Curtain holder and adjuster J. Cook
 Cutter blade P. F. Bolton
 Cutting and punching device J. & J. Evans
 Dialkyl malonylurea. Making F. Mayers
 Display can J. Schnabel
 Display fixture Shoe F. J. Gruss et al
 Display rack for advertising cards R. D. Almy
 Ditching machine M. Brown, Jr
 Door. Grain J. Siemsen
 Door opening system. Electrically operated W. T. Platt
 Door ventilator L. Ulrich
 Dough shaping machine F. Streich
 Draft attachment C. W. Petro
 Drain pipe seal trap W. R. Bonnell
 Draining marshes and the like Apparatus for J. Brants
 Dredging apparatus R. G. Hanford
 Dress suit case C. E. Turner
 Drill bit. Rock cutting J. G. Leuner
 Drinking fountain J. H. Tomlinson
 Dust laying and absorbing composition B. Singer
 Dye and making same. Morozzo W. Herzberg et al
 Dyeing indigo resists J. Ribbert
 Eaves trough C. Crawford
 Electric apparatus. Vapor A. D. Lunt
 Electric currents into continuous currents. Instrument for converting alternating J. A. Fleming
 Electric generator. Direct current dynamo B. G. Lamme
 Electric motor control system C. A. Mudge
 Electric switch A. E. Handy
 Electrical rosette G. W. Goodridge
 Electrolytic process using insoluble anodes A. G. Betts
 Elevated carrier M. Heus
 Elevator safety device J. W. Smith, Jr
 Embroidery frame suspension device R. Zahn
 Enameling machine J. F. Kerwel
 Energy and heat. Apparatus for the reduction of mechanical G. J. & C. H. Weber
 Envelop F. Klossnitzner
 Envelop clasp J. A. Sherman
 Excavating bucket W. Heffron
 Excelsior wrappers and pads. Machine for the manufacture of H. F. Shadbolt
 Explosion engine E. T. Pollard
 Eyeglass holder H. Rick
 Eyeglass lens 3 pats W. K. Knight
 Fanning mill A. V. Cleland
 Feed bag E. Pyle
 Feeding and delivering articles O. M. Lissak
 Feeding apparatus Poultry G. C. Scott
 Fence post J. M. C. Renfro
 Fence post Cement A. Moler
 Fence post Cement J. K. Purinton
 Fence post Concrete C. Spies

- Fifth wheel W. B. Morgey
 Filling attachment E. H. Gold
 Filter J. G. Garland
 Filter W. Noles
 Fire apparatus brake mechanism T. F. Troop
 Fire escape and water tower. Combined C. Schwarz et al
 Firearm. Automatic W. J. Whiting
 Firearm sighting attachment W. P. Shattuck
 Firearm trigger arrangement S. Turudija
 Fireplace and stove. Combined W. A. Douglass
 Fireproof door. Self-closing R. D. Mumford
 Fish rods. Device for holding W. J. Walton
 Fishing reel E. D. Rockwell
 Floating device L. Ledermann
 Floors. Construction of fireproof brick O. Cracoanu
 Flue cleaner G. W. Dean
 Fluid motor J. Hofmann
 Fluid pressure brake M. F. Volkman
 Fluid pressure controller G. W. Furbeck et al
 Foot warmer C. H. Boeck
 Fruit clipper C. F. Streight
 Fuel economizers. Tube scraper driving mechanism for E. B. Freeman
 Fuel feeding apparatus J. F. de Navarro
 Fuel. Feeding pulverized E. J. Neville
 Furnace E. G. Germer
 Furnace doors, gates, &c. Device for operating J. S. Hood
 Furnace flue dust. Utilizing S. B. Sheldon
 Furnaces. Reversing valve for smelting and other R. Schneider
 Furniture H. L. Andrews et al
 Furniture. Post office M. S. Field
 Fuse plug. Electrical G. B. Thomas
 Gage H. W. Siowe
 Gaging machine. Automatic O. M. Lissak
 Game counter T. S. Ford
 Garment J. M. Van Orden
 Garment supporter clasp F. A. Stickle, Jr
 Gas apparatus. Acetylene F. M. Moore
 Gas burner. Incandescent J. Mallot
 Gas. Generating C. H. Claudel
 Gas generator. Acetylene J. W. Featherstone
 Gas light T. Maguire
 Gas mantle. Incandescent C. M. Lungren
 Gas mantles. Preparing incandescent C. M. Lungren
 Gate G. S. Buck
 Gate J. G. Hibner
 Gearing. Transmission C. E. Neai
 Gearing. Variable speed L. Megy
 Glass articles. Machine for making A. Raspillaire
 Glass molding machine A. Strub
 Glasses. Filling device for J. F. Christin
 Gluing machine F. J. Heybach
 Gold saving apparatus W. D. Bauey
 Grain cleaner A. Kammerloher
 Grain drills. Speed changing mechanism for H. J. Case
 Grain separator chaffer attachment A. D. Dusenbery
 Gun sight. Combination J. Y. Bassell et al
 Gun sight. Globe J. Y. Bassell et al
 Hammer. Pneumatic A. I. Patch
 Harvester. Pea and clover J. Guelig
 Heat retainer and making the same C. H. Boeck
 Heater C. H. Boeck
 Heating device. Electric G. E. Stevens
 Heel compressing machine. Boot and shoe J. V. Collier
 Hoisting apparatus P. I. Fahey
 Holding attachment C. Benedict
 Hook A. Mills
 Horse bonnet C. S. Moore
 Horse releaser A. Straka
 Horseshoe C. A. Campbell
 Horseshoe A. H. Squier
 Humidifier J. Hase
 Hydrosulfite preparations. Making R. Muller
 Ice cream disher H. A. Keiner et al
 Ice cutting machine I. Boyd
 Ice melting apparatus H. C. Reichardt
 Incandescent mantle A. I. Van Vriesland
 Insulated rail joint R. W. Smith
 Insulating material W. L. R. Emmet
 Insulator G. M. Bemis
 Insulator. Electrical G. W. Goodridge
 Ironing board L. M. Darrow
 Ironing board H. Wright
 Ironing the edges of collars and cuffs. Machine for W. C. Cunningham
 Jack and truck. Combined O. F. Landberg
 Jar cap. Fruit W. P. Coldren
 Jar neck and closure A. Smelker
 Journal. Interchangeable I. H. Ostrander
 Key guard W. R. Brennan
 Key ring A. H. Merrill
 Kitchen table C. M. Blancet et al
 Kitchen. Window I. M. Thompson
 Knife E. Blomseth
 Knife switch B. M. Graybill
 Labeling machine C. Otting
 Ladder. Step F. Pfeifer et al
 Lamp R. M. Dixon
 Lamp mantles. Means of suspending incandescent 2 pats C. L. Lunoren
 Lamp shade holder. Incandescent J. H. Dale
 Lamps. Bracket arm for incandescent electric H. L. Getz
 Lamps. Globe lift for wall D. C. Kline
 Lard compounds. Apparatus for bleaching J. N. Humphreys
 Last. Darning W. G. Flexon
 Lathe steady rest H. S. Johnson
 Lead by electrolysis. Apparatus for refining A. G. Betts
 Lens clamping device J. H. Starbuck
 Leveling instrument E. M. Low
 Life preserver W. H. Humphrey
 Lifting jack C. E. Roth
 Light box C. M. Olin
 Limb. Artificial H. J. Morris
 Lime. Hydrating J. G. Jones
 Linotype machine J. R. Rogers
 Linotype machine P. T. Dodge
 Liquid discharging tank T. L. Smith
 Loader J. C. Mire
 Lock G. K. Glenn
 Locomotive boiler S. A. Reeve
 Locomotive. Compound F. W. A. von Borries
 Logotype machine 2 pats J. R. Rogers
 Loom for weaving pile fabrics A. Heald
 Loom jacquard mechanism H. Gerber
 Loom pattern chain mechanism B. F. McGuiness
 Loom shuttle box motion H. Bardsley
 Looms. Filling exhaustion indicating mechanism for E. S. Wood et al
 Lubricator F. W. Leidecker
 Lubricator J. D. Pedersen
 Macadam and preparing same. Tar E. P. Hooley
 Mail bag catcher P. S. Perry
 Mail delivery apparatus B. W. Harris
 Mail distributing apparatus W. Barry
 Mail marking machine J. B. Young
 Malting apparatus J. F. Dornfeld
 Manure spreader. Detachable L. E. Francis
 Marking or tracing device P. F. Limacher
 Massaging implement A. U. Patchen
 Match making and boxing machine G. A. Barnes
 Match splint cutting and sticking machine W. E. Williams
 Matrix former. Approximal R. M. Chase
 Mattress. Spring F. J. Maier
 Measurements. Instrument for making electrical J. A. Fleming
 Measuring the length of electric waves. Apparatus for J. A. Fleming
 Mechanical movement A. Dina
 Metal and concrete construction C. L. Raymond
 Meters. Device for use in connection with velocity E. S. Cole
 Milk cooler P. L. Stein
 Mixing machine H. C. Chambers
 Mixing machine T. L. Smith
 Mixing substances together in regular proportions. Apparatus for T. H. D. May
 Mixing vessel J. F. Lamb
 Molding apparatus W. P. Meeker
 Mop head E. O. Loeber
 Mordanting with magnesium compounds W. Warr
 Motor operated switch W. E. Laird
 Mower pitman G. B. Hawkins
 Music leaf turner G. S. Budge
 Music stand A. Krauth
 Musical instrument touch regulator W. Rohlfing, Jr
 Necktie holder J. M. Gwin
 Oil W. L. Howland
 Orchard heater C. S. Brown et al
 Ore concentrator J. J. Kennedy
 Ore crushing machine G. Johnston
 Ores, &c. Treatment of iron C. Ellis
 Ornament R. Burger
 Oxids of nitrogen. Means for producing E. Marquardt et al
 Pantaloon stretcher S. F. Cary
 Paper clip J. B. Hale
 Paper feeding machine B. Gustafson
 Paper holder. Toilet C. E. Pope
 Paper perforator or punch A. Tenenwall
 Pattern forming machine. Hollow F. A. Volke
 Pea hulling machine W. C. Combest
 Pearls, &c. Manufacture of artificial P. E. L. Perdrizet
 Peat machine T. H. Leavitt
 Pen feed. Fountain W. A. Welty
 Pen. Fountain E. Reiser
 Pen. Ruling H. Kern
 Pencil sharpener W. B. Hopkins
 Petroleum burner S. Carlson
 Photographic plate or film G. N. Pifer
 Photographic process and product G. N. Pifer
 Piano action O. Glatt
 Pianos. Manually or mechanically operated I. Hattemer
 Pianofortes. Device for leveling the keys of E. Werner
 Pick and ax. Prospector's J. McMahon
 Pile fabric C. C. Cawlow
 Piling. Wood sheet A. Larquist
 Pipe connecting member J. D. Tschopik
 Pipe coupling J. A. Grotewohl
 Pipe coupling. Train F. E. Gold
 Pipe expander S. E. Allen
 Pipe joint. Lead and iron F. E. Baker
 Pipe wrench J. H. Vinton
 Planing machine work guide L. A. Winters
 Planter H. D. Guffy
 Planter and fertilizer dropper. Potato R. Thompson
 Planter. Corn W. H. Sandifur
 Plosh. Shovel R. L. Burnett
 Poison distributor P. Brandt
 Polisher. Collector O. Zschokelt
 Potato digger J. B. Peters
 Power driving mechanism J. A. Charter
 Power mechanism P. Adams
 Power transmission apparatus. Fluid pressure J. W. Hall
 Power transmission device G. A. Cutter
 Pressure gage. Mercury H. C. Ramsberger
 Printed surfaces having relief appearance. Producing C. H. Mackenzie
 Printing plate holder. Reissue F. Rockstroh
 Printing press E. H. Ahlander
 Propeller. Marine C. G. Curtis
 Propeller. Reversing E. B. & L. S. Cushman
 Pruning implement G. R. Wright
 Pulley L. S. Lachman
 Pulp grinding machine. Wood R. Kihleren
 Pump and the like. Rotary F. Marburg, Jr
 Pump. Electric T. C. Stokes
 Pump for molten metal H. C. Hansen
 Punching and shearing machine C. A. Bertsch
 Quicksilver trap P. Somerville
 Rail clamp J. Murray
 Rail joint G. J. Walsh
 Rail joint chair W. R. Davis
 Rail or other joint W. J. Huckabay
 Railway and tramway carriages, &c. Step of I. G. Robinson
 Railway couplings. Manufacture of drawheads for W. L. Jacoby
 Railway. Pleasure E. S. Ensign
 Railway rail E. C. Genoux
 Railway signaling apparatus. Automatic electrical A. H. Binyon
 Railway switch stand contact box W. J. Hughes
 Railway switching and signaling apparatus W. K. Howe
 Railway tie E. C. Lawton
 Railway tie G. T. Murphree
 Railway tie J. R. McFall
 Railway J. Whitehead
 Railway tie R. M. Orr
 Railway tie. Composite H. T. Fixmer
 Railway tie. Metal J. Warren
 Railway tie. Metallic R. H. Lutz
 Railway tie. Metallic A. M. Baird
 Railway torpedo C. E. Beckwith
 Railway vehicle brake apparatus C. Luyers
 Railways. System of automatic signaling for electric F. Townsend
 Railways, tramways, &c. Signaling on J. Brown
 Refuse burner F. G. Wiseloge
 Register ball mechanism A. H. Woodward
 Rice. Preparing reissue J. W. Johnson et al
 Roll coupling box W. C. Millhizer et al
 Rolling mills. Bearing for the rolls of J. T. Horner
 Rolling sheet and tin plate. Apparatus for 5 pats P. E. Donner
 Roofing package H. M. Reynolds
 Rotary engine W. F. Jungersen et al
 Rotary engine W. M. Hoffman
 Rotary engine 2 pats G. A. Kelly
 Rotary engine F. M. Ober et al
 Rotary kiln W. R. Warren
 Roundabout H. S. Maxim
 Roving machine flier M. Campbell
 Rowlock C. A. Wood
 Safe H. C. Stockwell
 Safety hook F. Sherkel, Jr
 Sash fastener. Window M. J. Carter
 Sash weight E. B. Smith
 Sash weight. Sectional N. A. Perry
 Sausage stuffer S. Ressler
 Saw filing machine C. E. Grover
 Saw guide B. F. Huffman
 Saw handle. Crosscut W. Kronenwetter
 Saw. Scroll A. Jones
 Sawing machine. Band J. J. Meyers et al
 Sawing machine. Portable G. F. Wallace
 Scale. Pitless wagon D. M. Orcutt
 Scale. Weighing D. M. Orcutt
 Screen sizer and separator. Submerged J. M. Callow
 Screen slide. Extension A. H. Mix
 Screw. Electrical binding W. Kaisling
 Sealing rings with wax. Feed mechanism for machine for coating G. D. C. Coddington
 Separator sieve W. C. Black
 Shade and curtain holder J. O. Kridelbaugh
 Shaft. Obturator for flexible A. E. Guy
 Shaping machine I. J. Shifley
 Sharpener. Scissors W. A. & J. Harvey
 Shearing machine. Plate P. Evans
 Shoestring fastener G. C. Adams
 Shovel and poker. Combined J. W. Maxwell
 Sign G. J. Frey
 Signal controlling device. Self-restoring E. W. Vogel
 Sink strainer E. S. Duffy
 Skate J. E. Martin
 Slimes, &c. containing gold, silver, and other values. Treating ore L. J. Drabek
 Slimes. Treating anode E. F. Kern
 Smelting furnace. Ore R. Baggage
 Snow plow 2 pats H. Grimes
 Socket wrench C. K. Hill
 Sofa and bed. Combination G. E. Holmes et al
 Soles. Machine for cutting block G. Quarby
 Spade attachment E. C. Jewett
 Speed changing device S. C. Shauer
 Speed changing device G. A. Cutter
 Speed mechanism. Change W. Baxter et al
 Speed mechanism. Variable E. Hill
 Speed mechanism. Variable D. E. Sweetser
 Spindle tube S. Sharp
 Spinning machine 2 pats M. Campbell
 Spinning or twisting machine M. Campbell
 Spring F. P. D'Arcy
 Spring clip J. B. Hale
 Spring cushion W. R. Smith
 Square. Carpenter's and joiner's folding W. Steers, Sr
 Stamp separator C. J. Fancher
 Steam and water heater C. F. Paul Jr
 Steam generator C. Renard
 Steam. Utilizing exhaust L. P. Burrows
 Steamboat J. Lockwood
 Steel and other metals. Apparatus for making E. C. Wills
 Stirrup C. J. E. Kellner et al
 Stirrup F. W. Bantz
 Stock releasing device B. Teal
 Stoker. Mechanical E. McConnell
 Stoker. Mechanical M. B. Brewster
 Stove A. J. Lindemann et al
 Stove and furnace W. H. Burns
 Stove attachment. Cooking B. Eger
 Stove cut-off. Gas C. Bargamin
 Stove. Gas A. Verwey
 Stove. Soft coal base burning E. J. Lahan
 Surgical apparatus for internal examination I. C. Zubli
 Switch G. Bertold
 Syringe C. J. Tagliabue
 Table support V. C. Luppert
 Tapping apparatus A. L. Velard
 Tapping attachment G. H. Hollm
 Target trap J. P. Leggett
 Telegraphic sounder F. H. Miller
 Telegraphy receiving stations. Induction transformer for wireless E. Ducretet
 Telephone exchange system H. G. Webster
 Telephone holder C. H. Borden
 Telephone night watch system W. Geckler
 Telephone switchboard apparatus T. V. Davis
 Telephone system W. A. Robinson
 Telephone F. W. Dunbar
 Telescopic case or box C. W. Barnes
 Thermal protector. Self-soldering F. B. Cook
 Thermometer C. J. Tagliabue
 Thread guide X. Bossart
 Tickets, &c. Automatic delivery apparatus for N. Klein
 Tickler J. B. Perrine
 Time recorder W. I. Follett
 Time recorder. Watchman's I. Summers
 Tire. Armored C. W. Caterson
 Tire. Cycle A. S. Allen
 Tire. Pneumatic A. S. Allen
 Tire. Pneumatic M. H. Blakeslee
 Tire shrinker and jack W. H. Horner et al
 Tire. Vehicle reissue H. Lutz
 Tobacco. Removing nicotine from articles made of A. Falk
 Tooth for bridgework. Artificial H. R. Gregory
 Toy swing G. A. Mellen
 Track sanding device H. Stokes
 Traction wheel M. Peterson
 Train order indicator H. C. Beck
 Trap F. H. Schultz
 Trimming D. B. Coon
 Trolley wheel E. Brossy
 Trousers creaser A. W. Proctor
 Truck E. F. & B. R. Sherrill
 Truck. Molding machine W. Sieber
 Tug hook. Hame S. Harrell
 Turbine E. T. Pollard
 Turbine W. L. R. Emmet
 Turbine. Elastic fluid F. Windhausen
 Turbines. Means for reducing friction loss in F. Herles et al
 Turbines. Relief mechanism for elastic fluid O. Junggren
 Twine holder M. Ricketts
 Umbrella A. Seligstein
 Umbrella A. H. Bamberger et al
 Underreamer W. J. Travers
 Valve W. P. Schott
 Valve actuator. Automatic C. A. Sullivan et al
 Valve. Automatic retaining H. W. Short et al
 Valve or flush tanks. Water inlet E. Morris et al
 Valve. Locomotive blower E. S. Brooke et al
 Valve. Throttle C. H. Fox
 Vehicle antivibration device reissue J. M. M. Truffault
 Vehicle body S. R. Bailey
 Vehicle brake P. H. Fuller
 Vehicle gear F. E. Wilcox
 Vehicles. Antivibration device for E. V. Hartford
 Veterinary forceps S. & W. Brower et al
 Vibratory impacts. Implement for imparting J. H. Champ
 Vise. Bench W. & S. Vanmanen
 Voting machine A. A. Farwell
 Wagon body supporting device O. W. Shaw
 Wagon brake C. M. Marcom
 Wagon brake J. L. Shaw
 Wagon. Hose B. B. Briggs
 Washing machine J. J. Green
 Washing machine J. P. Gordon
 Water elevating apparatus G. W. MacKenzie
 Water heating apparatus reissue P. A. Deasy
 Water meter C. F. Merrill
 Water supplying device for poultry F. Bade
 Water to pressure receptacles. Apparatus for introducing S. A. Reeve
 Web feeding rolls H. F. Bechman
 Weighing machine. Automatic G. W. Lottridge
 Welding clamping device. Electric A. F. Reitzel
 Well drilling tool coupling E. A. Davison
 Window reissue J. H. Giesey
 Wire fabric making machine G. A. Raymond
 Wire netting machine O. Turke
 Wire reel C. W. Stark
 Wire stretcher M. K. Lewis
 Wire stretcher W. T. Martin
 Wire weaving machine W. H. Mason
 Wire working machine A. H. Nilson et al
 Womb supporter M. J. Barchfeld et al
 Wood. Producing liquid tight joints for impregnating G. Kron
 Wood. Saturating W. C. Jones et al
 Wrench W. J. Ryan
 Wrench and spanner. Combined J. R. Hopkins
 Wrench pipe jaw E. Thompson et al

DESIGNS.

Issued November 14, 1905.

MECHANICAL PATENTS.

- Abrasive apparatus O. C. Wysong
 Acetylene tetrachloride. Making P. Askenasy et al
 Acids. Making and separating hydrochloric and sulfuric P. Askenasy et al
 Advertising novelty W. H. Bender
 Agricultural implements. Draft bar for N. H. Bloom
 Agricultural implements. Riding attachment for N. H. Bloom
 Air ship and propeller therefor J. C. Clancy
 Automobile steering mechanism H. H. Buffum
 Awning and cover fastener H. D. Waterhouse et al
 Axle. Lubricating I. A. Birdwell
 Bag filling and weighing machine F. G. Pennock
 Bag holder and spreader H. F. Ballou
 Baking apparatus J. W. Ruger
 Ball bearing jack H. G. Johnston
 Bathometer E. S. Wheeler
 Bed and carriage for children. Combination S. D. Carmichael
 Bed bottom. Spring F. J. & W. C. Van Cise
 Bed. Folding J. D. Froman et al
 Bee feeding apparatus J. F. Schoning
 Beehive G. F. Kregel
 Berth or bunk H. W. Grove
 Bill holder A. J. Tice
 Binder lock. Loose leaf H. C. Miller
 Binder. Temporary A. S. Harn
 Binding post F. Jackson
 Bit A. L. Bethe
 Blank and envelop. Combined statement M. Harwell
 Blank. Bill or statement H. J. Halle
 Blast regulating apparatus. Automatic S. W. Vaughan et al
 Boats, automobiles and other vehicles. Announcing device or horn for F. Tauzin et al
 Boats unsinkable. Device for rendering small J. M. A. Deydier
 Boiler tube fastener A. J. Ervin et al
 Boring holder or rest C. E. Fowle
 Boring tools. Detachable head for C. P. Howk

- Boring and pole setting machine. Post hole. E. G. & G. R. Eddy
 Bottle closure. H. A. Olsson
 Bottles, flasks, &c. Machine for making. C. Boucher
 Bowling alley ball gutter. P. J. Riddell
 Box. W. C. James
 Box hook. A. M. Maretzek
 Bracelet, necklet and like ornament for personal wear. E. Satchwell
 Bracelet. C. Schraubstadter
 Brake beam. G. P. Ritter
 Brake mechanism. C. W. Larson
 Brake shoe. Vehicle. E. D. Shoop
 Brake system. F. B. Rae
 Brick drier. W. R. Martin
 Brick kiln. E. D. Young
 Bridge. G. Lindenthal
 Briquet manufacturing machine. G. Hopfner
 Brush fountain. W. Hasz
 Brush. Scalp massage. R. M. Smith
 Bucket. Bottom dumping and handling. P. C. Hains Jr
 Bucket. Clam shell. W. B. Roberts
 Bucket. Refuse. H. Freise
 Buckle. H. K. vom Hofe
 Buckle. M. Barabasz
 Bunsen burner. L. Page
 Burglar alarm. Electric. W. E. Orr
 Butter cutting machine. M. C. Gehl
 Butter cutting machine. 4 pats. R. F. Stewart
 Calculating device. C. M. Young
 Calculating machine. H. E. Goldberg
 Calendar. Perpetual. J. M. Crawford
 Camera. W. F. Folmer
 Can heading machine. H. C. H. Walsh
 Can holding device. Cracker. E. L. Reed
 Candy machine. B. B. Bowers
 Candy pulling machine. E. J. Jenner
 Car brake. F. T. Whitted
 Car coupling. D. P. Moran
 Car coupling. H. Donnelly
 Car curtains. Fastener for vestibule. H. L. Garrett
 Car draft rigging. Railway. J. F. Courson
 Car. Dumping. J. H. Kelly
 Car fender. S. Ebeuschweier
 Car fender. A. J. Berg
 Car locomotive. Multiple. J. J. Troeger
 Car. Railway. J. G. Brownfield
 Car replacer. H. Pratt
 Carburetor for explosion motors. G. Enrico
 Carpet sweeper. O. Chaplin
 Cart. J. Dain
 Cartons. Machine for opening up end closing. C. W. Gay
 Cartridge case extractor. L. V. Benet et al
 Case and holder. Combined. W. Paine
 Cash carrier apparatus. J. W. Clark
 Caster. Furniture. A. W. Graham
 Casting pig iron. E. P. Martin
 Cement block making machine. J. Miller
 Cement block molding machine. T. Fischer et al
 Centrifugal separator. J. B. Bartholomew
 Chain. G. C. Horst
 Chain coupling link. Cattle. B. Kuothe
 Chuck or rock drilling machines. J. H. Thomas
 Cigar and cigarette cutting machine. H. Eisner
 Cigar stand. Combination. C. A. Mueller
 Cinch grip. E. A. Grushus
 Cloth cutting machine. J. Philippsohn
 Cloth holder. P. J. Coan
 Coal washing apparatus. R. L. Martin, Jr
 Coin collector and holder. J. E. Wiley et al
 Coke puller. H. F. Pearson
 Concentrating and amalgamating table. J. A. Hamilton
 Concrete block molding flask. T. Libby
 Concrete floor entering. P. Kuhne
 Concrete mixer. J. W. Page
 Concrete structures. Means for reinforcing. R. R. Moorman et al
 Conduit coupling. W. S. Brown
 Cone coupling. H. Baumgartner
 Contacts. Making. F. Petz
 Container. J. R. Harbeck
 Conveyor for crushing machines. Elevating. T. J. Gray
 Conveyor for grading and ditching machines. Elevating. H. S. Hoy
 Copy or book holder. A. Mercier
 Corn husker and ensilage cutter. A. Rosenthal
 Couch. J. Hoey
 Coupling. J. & J. O. Timms
 Crab can. A. A. Saalbach et al
 Crimping machine. A. G. Legge
 Cultivator. J. R. Jones
 Cultivator attachment. W. J. Luttrell
 Cultivator weed cutter. J. E. Long et al
 Current motor. Automatic. J. Roeh
 Current bracket. Adjustable. H. R. Phelps
 Curtain clasp. Window. C. A. Kulinski
 Curtain fixture. R. C. Taylor
 Curtain fixture. G. H. Forsyth
 Curtain fixture. C. L. Hopkins
 Curtain fixture. H. L. Saucier
 Curtain holding device. 2 pats. P. A. Houghtaling
 Curtain holding means. C. L. Hopkins
 Curtain poles and tops. Adjustable holder for. H. A. Schmitz
 Cutting implement. W. U. Colthar
 Cycle brake. W. H. Cocks
 Delivering device. J. E. Chase et al
 Dental switchboard. M. N. Callender
 Dish drainer. G. B. Lawrence
 Dividers. H. Amerdt
 Door hanger and means for moving the door. Sliding. H. C. Percy
 Door lock. J. C. Hardenbergh
 Door lock and signal. Adjustable. W. R. Love
 Door or gate opening and closing device. E. T. Morris
 Door. Sliding. J. S. Schlosser
 Door stop. H. T. Depue
 Draw gear. J. F. Courson
 Drier. G. Boschke
 Drum. W. J. F. Schultz
 Drum. Heating. F. J. Kobusch
 Ear muffler. C. J. Keller
 Elastic wheel. W. Borchers
 Electric circuit closer. A. Dow
 Electric machine. Dynamo. C. P. Steinmetz
 Electric machinery. Dynamo. W. L. Waters
 Electric snap switch. G. B. Thomas
 Electric wiring. Branch block for. N. B. Hoyt et al
 Electrical controller. N. K. Garhart
 Electrical generator. M. Schwartz
 Electrical heater. J. A. Noble
 Electromagnetic wheel. H. Behan
 Elevator. C. D. Seeberger
 Elevator stopping mechanism. L. W. Southgate
 Embroidering machines. Driving mechanism for hand operated. J. Knecht
 Engine. C. Hornal
 Engines. Circuit controller for explosive. R. Varley
 Envelop. A. H. Mackenzie
 Excavating, hoisting and conveying bucket. R. W. Kaltenbach et al
 Eyeglass stud. C. Goodwin
 Eyeglasses. H. Fennell
 Eyeglasses. Nose guard for. G. Bausch
 Fan. W. A. Harrison
 Fan. Motor. G. E. Jacobson
 Faucet. Self closing. L. J. Rice
 Fence machine. Wire. E. C. Wood
 Fence post. J. M. Elder et al
 Fifth wheel. L. A. Keene
 Filter. G. Anderson
 Filter outlet controller. P. Hansen
 Finger shield. D. Hungad
 Fire alarm. W. D. Watkins
 Fire alarm. Portable. W. D. Watkins
 Fire escape. J. O'Hearne
 Fire extinguisher. B. Kellogg
 Fire extinguisher. W. H. Gloie
 Fire extinguisher. Chemical. C. A. Miller
 Fires. Sprinkler for extinguishing. J. Fiddes
 Firearm. J. R. McAlister
 Firearm. Automatic. W. J. Whiting
 Firearm with dropdown barrel. K. F. P. Stendebach
 Firearms. Face shield for side ejection shoulder. T. C. Johnson
 Firearms. Flexible rear sight for. G. H. Garrison
 Firearms. Semiflexible rear sight for. G. H. Garrison
 Fireproof window curtain. M. Berwanger
 Fish, assorting, cutting and cleaning machine. W. J. Kenney
 Flooring. H. Salomon
 Fly trap. J. G. Gibbs
 Fly wheel. R. Gerlach
 Flying machine. A. H. Friedel
 Folding machine cutting mechanism. H. K. King
 Folding machines and the like. Delivery apparatus for. A. B. Dick
 Forceps and the like. T. C. Hutchinson
 Forging press. H. V. Loss
 Freezing apparatus. Portable. F. Kruger et al
 Fruit shipping rack. Folding. J. W. Mills et al
 Fur skins. Chamoising. R. Gottwald
 Furnace. J. E. Hayden
 Furnace door arch protector. G. A. Fisher
 Furnaces. Ash conveyor for. H. G. Cox
 Fuse plug. P. I. Lawrence
 Game apparatus. W. J. Hamilton
 Game apparatus. Base ball. J. F. Woodberry
 Garden implement. D. A. Schutt
 Garment supporter. J. W. Schloss
 Garment supporter. J. F. Molloy
 Gas. Apparatus for the manufacture of generator. P. Steins
 Gas burner attachment. Automatic. S. H. Ury
 Gas burner. Incandescent. M. Kay
 Gas burner. Portable. J. F. Parker
 Gas engine. C. J. & V. E. Moody
 Gas. Generating. E. Krenz
 Gas generator. Acetylene. A. J. Ferguson
 Gas generator. Acetylene. G. H. Cliff
 Gas generator. Acetylene. S. A. Mencer
 Gas meter. 2 pats. E. Haas
 Gas producer. E. Krenz
 Gas purifier. A. Sabin
 Gas reversing valve. H. E. Schild
 Gasoline. Device for removing the sediment from. H. D. Waterhouse et al
 Gate opener. E. T. Morris
 Gear. Yieldable. G. W. Smith
 Gearing. Change speed. W. R. Cary
 Gearing. Differential. J. G. O'Kelly
 Gearing. Variable speed. A. Peteler
 Gearing. Variable speed. C. K. Lassiter
 Girder. E. Hancox
 Glass. Apparatus for the preparation of panes of opal. G. Poncelet
 Glass drawing machine. G. H. Harvey
 Glass furnace. H. G. Slingluff
 Glass plates. Dust proof joint for. A. Jaeger
 Glass separator. F. M. Johnson
 Graphophones, &c. Membrane. A. A. Piccinini
 Grate bar. W. McClave
 Grinding machine. Cutlery. C. L. Joy
 Gun barrel. Rifle. L. Lincoln
 Gun firing attachment. J. F. Meigs et al
 Gun rammer. J. F. Meigs et al
 Gun trigger. Double barreled. A. Raus
 Guns. Toggle link lock for recoil loading. A. W. Schwarlose
 Gymnastic apparatus. R. Fiedler
 Hair. Device for applying dyes, &c. to the roots of. G. Peiray
 Hair clip. Detachable. J. S. Cnsson
 Harness bit. J. Bald
 Harness machine guide. M. Lanterbach
 Harness pad. A. F. Ransom
 Harrow. L. Blinde
 Harrow. J. M. Ullsh
 Harvesters. Counting mechanism for grain. I. Trolley, Jr
 Harvesters. Lifting mechanism for corn. A. N. Hadley
 Hay rake. B. B. Phillips
 Head and ear protector. J. M. Shourt
 Hinge. 2 pats. J. Soss
 Hinge and lock. Blind. R. W. Perry
 Hoodwink. E. & U. S. De Moulin
 Hop sprayer. G. Roberts
 Horseshoe. H. Hennen
 Horseshoe. J. Wolff
 Horseshoe. reissue. F. J. Bacon
 Hose cleaning apparatus. Automatic. F. Fink
 Hot air furnace. D. J. Archer
 Hot air furnace, reversible draft. C. F. A. Roell
 Hub attaching device. W. D. Walker
 Hub holding and indexing device. J. A. Kaplan
 Illuminated bar. O. T. Burness
 Inclined elevator. J. W. Reno
 Induction coils. Apparatus for the manufacture of. L. B. Miller
 Instep support. L. T. J. Lubin
 Iron oxid for use in blast furnaces. Preparing. U. Wedge
 Iron pyrites charge for desulfurizing furnaces and preparing same. U. Wedge
 Iron pyrites for desulfurization. Preparing. U. Wedge
 Iron pyrites for desulfurization. Treating. U. Wedge
 Ironing board. D. Messer
 Jar, bottle, and other vessel. A. E. Pike
 Jar closure. T. Beatty
 Joist hanger. A. Carlson
 Journal box. Self oiling. H. W. Hill
 Kernel feeding machine. G. B. Ellingwood
 Knitting machine. E. A. Pigeon
 Lamp bus. Locking device for incandescent. R. E. Davis
 Lamp. Miner's. D. E. Herron
 Land leveler. D. A. Savage
 Laths. Cutting. L. Boisard
 Lathe gage device. N. D. Chard et al
 Laundry blue distributor. P. Diamond
 Ledger. Loose leaf individual or general bank. M. P. Exline et al
 Leg. Artificial. J. Bunderle
 Level. Adjustable spirit. A. C. Brundage
 Life preserver. W. N. Morrison
 Lifting jack. C. M. Sawyer
 Link. Releasable. R. C. Smith
 Liquid distributor. J. Kaidi
 Loader. W. H. Ericsson
 Locomotive boiler. J. A. Welton
 Loom for weaving pile fabrics. H. A. Foster
 Lubricating compound. C. Comstock
 Lubricating device. B. F. Campbell et al
 Lubricator. G. W. Brown
 Lubricator. C. Comstock
 Lubricator. H. H. Lytle et al
 Mangles. Apron guide for. P. E. Bradley
 Match making machine. L. Cobbaert
 Mattress. Sanitary wool bed. N. J. Wallis
 Metal cutting shears. J. C. Burgess
 Metal sheet corrugating machine. G. C. Witt
 Metal tubes, rods, and the like. Apparatus for bending. W. Kennedy
 Milk heater. H. J. Grell
 Milling machine. Continuous. 2 pats. L. Coes
 Millstone. A. Kreps
 Mining machine. J. Stein
 Minnow or trolling hook. Artificial. G. Bruton
 Molding machine. H. A. Walter
 Music leaf turner. E. Bryon
 Musical instrument attachment. J. Sauer
 Nail cutting die. Wire. J. Wikschrom
 Nail driver. Magazine. M. Hindmarch
 Necktie fastener. J. Nutry
 Nitroglycerin. Making. C. L. Reese
 Nut lock. C. W. Burnham
 Nut lock. T. O. Garrett
 Oil cup. L. Gleason
 Oil from water. Apparatus for extracting. D. H. Haywood
 Operating pad or receptacle. C. W. Meinecke et al
 Ore crusher and pulverizer machine. A. Tetrault
 Oven floor. J. C. Millar
 Oven screen. B. Morgenstein
 Ozone. Electrical apparatus for producing. A. C. Wood
 Painting and coloring lincrusta, &c. Process of and apparatus for. F. Walton
 Paper characterized by its impervious nature and strength. C. I. Goemann
 Paper cup. C. G. Perkins
 Paper elevator. J. C. Hammer
 Paper. Magazine and delivery mechanism for. 2 pats. C. P. Fonda
 Paper refining engine. I. P. Dillon
 Paper weight. J. B. Williamson
 Pasteurizing apparatus. F. Tyson
 Pasteurizing liquids. F. Tyson
 Peat carbonizing apparatus. T. Ledermuller
 Pencil sharpening machine. G. W. Wright
 Perforating machine. R. A. Jonaa
 Perforating machine. R. H. Little
 Phonograph repeating device. E. Fletcher
 Photographic instrument. J. Isakson
 Phosphorus. Making red. R. Schenck et al
 Photographic plate developing apparatus. M. H. Stockwell
 Picture frame. R. J. Walker
 Pictures and the like. Device for hanging. F. E. Miller
 Pie rack case or holder. B. H. Kannerberg
 Pillow support. J. C. Condo
 Pipe covering. R. Zeiller
 Pipe joint. Flexible. J. Coppermith
 Pivot pin supporting device. J. Willison
 Planter and cultivating implement. Combined. J. W. Clifton
 Planter. Automatic check row corn. W. C. & C. R. Gibson
 Planter. Seed. N. B. Hodge
 Plastic masses. Machine for molding. A. Lutz
 Plow. C. Schardt
 Plow. Beet. E. G. Smart
 Plow heel. G. J. Higgins
 Plow. Steam. G. S. Lowell
 Pneumatic hoist. H. H. Vaughan
 Pole cross arms. Support for. E. C. Short
 Powders. Apparatus for holding and delivering. F. W. Norris
 Printing and numbering machine. D. Sr., & Jr. A. L. & J. W. Carlaw
 Printing machine. Oil cloth. W. H. Waldron
 Printing press covering mechanism. H. A. W. Word
 Projectile. Explosive. C. Chronic
 Protocathodic aldehyde. Making. R. J. M. Sommer
 Pruning implement. L. H. Mullen
 Pulley lubricator. Loose. L. C. Hobart
 Pulp. Compacting liquid borne fibrous. J. H. Rivers
 Pulper. D. Gordon
 Pump. C. A. Arnsberger
 Pump. Centrifugal. J. L. Shepard
 Pump. Lubricating. G. W. Cole
 Pump. Rotary. H. Handoll
 Puzzle. C. E. Harris
 Rail fastener. T. S. Newton
 Rail joint. W. R. Holland
 Rail joint. M. Hester
 Rail joint. C. K. Humphreys
 Rail joint. E. Roberts
 Rail splice. J. L. J. & C. W. Smith
 Railway and like vehicles. Automatic coupling for. W. R. Jenkinson
 Rail tie. W. L. Schrum
 Railway automatic safety crossing system. W. J. Bell
 Railway brake. Electrically controlled fluid-pressure. J. S. Lockwood
 Railway bumping post. G. L. Chatfield
 Railway bumping post. W. E. Symons
 Railway rail joint. T. Powell et al
 Railway rails to chairs. Key for keying. J. A. Coquoun
 Railway safety crossing system. W. J. Bell
 Railway signal and switch appliances from freezing or clogging. Device for preventing. F. L. Young
 Railway switch. J. G. Gilreath
 Railway switch signal apparatus. A. J. Pieszak et al
 Railway switches. Detector bar for. W. Baum
 Railway track construction. J. Owen
 Railway vehicle brake. J. Egetz
 Range. Knockdown. C. L. Gohmann
 Receptacle. M. A. Howard
 Reel carrier. H. Hedlund
 Reflector for artificial lights. Prismatic glass. O. A. Mygatt
 Reflector shade for artificial lights. O. A. Mygatt
 Reflector shade. Prismatic glass. O. A. Mygatt
 Respirator. W. Schwarz
 Rifles and other arms. Telescopic sight for. W. Youlten
 Roasting furnace. A. W. Chase
 Roasting furnace. 2 pats. A. R. Meyer
 Roasting or desulfurizing furnace. Mechanical. H. Howard
 Rock crusher. H. H. Blake
 Roof. Self supporting conical. I. S. McNamee et al
 Rotary engine. H. M. Lofton
 Rotary meter. 2 pats. G. Fajen
 Rough rounding and channeling machine. G. F. Wolfe
 Ruling machine. E. F. Peckham et al
 Sad iron. J. H. Rogers
 Saddle. Harness. C. F. Wiesenmeyer
 Saddle. Harness. G. McMullin
 Salve. Radio-active. H. Lieber
 Sand drier. W. King
 Sash balance and lock. Window. T. Pachali, Sr
 Sash holder. Window. reissue. E. G. Abell
 Sash lift. W. E. Norris
 Saw filling machine. C. M. Henderson
 Sawmills. Machine for transferring and turning logs in. J. R. Snell
 Saw tooth. Adjustable. W. Lewis
 Screw cutting die. A. I. Smart
 Screw driver. E. Searle
 Seat and table. Combined. W. G. Hastings
 Sectional boiler. J. J. M. Lange
 Sewing and trimming machine. B. H. Zimmerman et al
 Sewing machine. Buttonhole. J. C. Umpleby
 Sewing machine feeding mechanism. C. F. Gray
 Sewing machine ruffling attachment. P. G. Davis
 Sewing machine shuttle mechanism. S. Borton et al
 Sewing machine tension mechanism. J. H. & J. B. Ursbruck
 Sewing machine thread controlling mechanism. J. H. & J. B. Ursbruck
 Sewing machines. Stocking holding band for darning purposes for. A. G. Maynard
 Shade guide. P. G. Emery
 Shade roller bracket. Detachable. J. S. Ploof et al
 Shafts of instruments. Support for the. F. R. Beckert
 Sheep, &c. Machine for dipping. H. M. Jordan
 Sheet iron boxes. Dressing tinned. H. Goldschmidt
 Sheet metal humidifier. H. Macarty
 Sheet metal perforating apparatus. T. A. Edison
 Sheeter and bar press. J. W. Ruger
 Sheeting and manufacturing same. Protective. S. Cabot
 Ships and boats. Construction of the hulls of. H. E. Ross
 Shoe form. H. A. Weeks
 Shoe repairing stand. T. Reindle
 Shoe tread. W. A. Robbins
 Shutter worker. W. Texdorf
 Small arm having automatic breech action. F. von Mannlicher
 Smelting and refining furnace. Combined. C. C. Medbery
 Smoke tubes. Tightening device for. W. Schmidt
 Smoking pipe. J. Kraus
 Snatch block. P. H. Strohming
 Soap holder. Liquid. J. F. Helmold et al
 Soldering paste. M. Leisel
 Spraying device. J. F. Cass
 Spring hanger. 3 pats. T. W. Plumb
 Stacker. G. W. Soule
 Stage illusion. Apparatus for producing. E. Thorn et al
 Stamp holder. W. H. Keeler
 Stanchion. O. H. Robertson
 Stanchion latch. C. Rodenals
 Stand pipe. D. L. Winters
 Stays and for connecting struts. Apparatus for forming. F. W. Winterhoff
 Steam boiler. G. Stadler
 Stereotype plate and base connection. J. W. Butterfield et al
 Still. F. B. Cole
 Stock supporter. M. B. Foster
 Stone saw. 3 pats. C. L. Miel
 Stone saw blade. C. L. Miel
 Stone. Sawing. J. A. Hall
 Stone sawing machine. J. A. Hall et al
 Stove. Gas. J. I. Strain
 Stovepipe thimble and flue cap. A. T. Burch
 Strap holder. J. D. Randall
 Submerged heater. C. H. Grub
 Sunshade. I. Wine
 Superheater. W. Schmidt
 Surgical table. E. L. & E. B. von Eschen
 Swing. A. W. Kirkpatrick
 Switch. J. C. Scargle
 Switch contact mechanism. Snap. C. A. Clark et al
 Switching apparatus. Electrical. W. J. Richards

Syringe A. B. Jamison
Syringe C. J. Davol
Tablet. Writing P. T. Lemaster
Tag F. K. Blanchard et al
Talking machine attachment G. Konigstein
Tanning J. Campbell
Target. Self registering M. S. Ellis
Teeth. Apparatus for the correction of irregular V. E. Barnes
Telephone line wires. Device for preventing contact in W. L. G. Appleby
Telephone instrument E. A. Reynolds
Telephone push button switch mechanism B. L. Lawton
Telephone switchboard signal F. R. McBerty
Telescope cross hairs. Illuminating means for G. N. Saegmuller
Templet and punch for marking centers in metal work J. D. Cummings
Terpenes and other products from wood. Obtaining E. B. Weed
Therapeutic apparatus C. O. Lindstrom
Thermomedical device D. M. Small
Thill and tongue support J. H. Henson
Thill coupling B. F. Haldeman
Thill loop C. A. Jacky
Tile and other articles of pottery ware, glass, &c. Automatic machinery or apparatus for decorating and glazing F. Monntford
Tile molding machine H. Meyer
Tile. Roofing H. Meyer
Time alarm W. A. Garris
Time recorder. Watchman's J. Summers
Tire. Pneumatic O. M. Bigger
Tire. Resilient 2 pats. W. F. Beasley
Tire. Vehicle F. A. Magowan
Tire. Vehicle F. G. Saylor
Tobacco pipe cleaning attachment W. J. Mecredy
Tool C. S. Schultz
Tool. Hand E. M. Zacharias
Tool. Pneumatic E. B. Boyer
Torpedo net W. P. Bullivant et al
Toy bank F. Plattner
Track gage C. Nelson
Transmission mechanism C. G. Simonds
Transmitter 2 pats. A. Van Wagenen
Tray case. Dress A. Baxter
Trolley M. Baker
Trunk C. C. Wington
Tunneling system J. W. See
Turbine engine H. Lentz
Turbine. Steam C. G. Y. King
Turbines. Bucket wheel for elastic fluid H. Keller
Tweezers E. C. Ellsworth
Type casting machine F. E. Peacock
Umbrella holder J. E. Duffy
Unloading device 2 pats. C. E. Otterman
Urinal 2 pats. L. D. Lawwin
Valve gear W. T. Merzenich
Vehicle dust guard P. K. Hollingsworth
Vehicle perch connection L. E. Hickok
Vehicle wheel J. M. Boulanger
Vehicle wheel G. G. Jackson
Vehicle wheel N. A. Newton
Vehicles. Means for freeing horses from D. Boldog
Vehicles. Receptacle for attachment to W. E. Wright
Vehicles. Variable speed transmission for G. W. Marble et al
Veneer covering and producing the same W. H. Strickler
Vessel hull I. E. Palmer
Vessel. Odorless J. Patton et al
Wagon body G. R. Hysom
Wagon box protector J. M. Urie
Wagon. Dump J. Somerville
Wall protector T. J. Dunbar
Washing machine J. H. Maclay
Washing machine S. O. Collins
Watch barrel G. F. Johnson
Watch barrel. Safety G. F. Johnson
Watches. Impulse pin for E. Kuhn
Water closet E. G. Watrous
Water closet R. E. Crane
Watch holder and guard J. D. McCarthy
Water meter L. Leagus
Weeder or cultivator F. L. N. votny
Welding rails. Electrically C. Pahde
Wheel fender I. Vogt
Whiffletree coupling A. W. Gilchrist
Whip holder R. Schroeder
Wind engine C. McGregor
Windmill J. C. Summers et al
Window and the like fitting W. L. Hamilton
Window chair M. Pietsch
Window construction E. H. Lunken
Window holding and antirattling device J. B. Hunt
Window screen C. J. Wallen
Window screen C. F. Barr
Window screen. Metallic E. T. Burrows
Winker brace W. W. Gleckner
Wire cloth holder and measuring device J. A. Prather et al
Wire fabric machine P. W. J. W. B. L. & W. Sommer
Wire feed, straightening, and cutting mechanism V. Hoxie
Wire staple forming and discharging mechanism E. J. Gibson
Wire staple forming and discharging mechanism V. Hoxie et al
Wire staple forming and discharging mechanism 3 pats. V. Hoxie
Wire stretcher H. L. Ferris
Wood. Fiberizer for reducing A. W. Handford
Woodwork. Rotary cutter for W. Kinley
Woodworking machine cutter head G. W. & H. T. Clark
Wrench W. R. Tomlinson
Wrench F. L. Robinson
Wrench H. T. Thompson
Wrench D. Harris
Wrench G. A. Low, Jr
Yeast extracts from bitter principles. Freeing M. Elb

DESIGNS.

Automobile body 5 pats. A. P. Brush
Badge R. C. Dick
Basket L. E. Jung
Carpet W. Thomas
Carpet W. A. Perry
Casket handle socket 2 pats. A. V. Eginton
Chair W. F. Wittich

Phonograph horn F. M. Murphy
Rocker body 3 pats. R. T. Carr
Rosary H. F. Nehr
Rug W. A. Perry
Stove 2 pats. M. R. Lehman
Stove. Gas H. S. Humphrey

Issued November 21, 1905.

MECHANICAL PATENTS.

Acid. Making hydrochloric W. E. Everette
Acoustic diaphragm J. H. Van Mater
Advertising and mailing card L. D. Jones
Advertising device. Clock controlled H. C. Quick
Aging, mellowing and purifying wines and liquors. Apparatus for J. F. & J. F. Duffy, Jr
Agricultural implements. Riding attachment for N. H. Bloom
Air brakes. Mechanism for automatically actuating C. P. Geritz
Air presser 2 pats. A. H. Gibson
Amalgamator C. W. Patten
Amusement bomb R. Stresau
Anchor. Earth C. Handele et al
Automobile cyclometer J. Alexander
Axle box lid A. M. McCrea
Bag closure C. F. Jenkins
Barrels, pickle jars, &c. Follower for M. Crippen
Basin cleansing device. Wash J. E. Keyt
Bat. Base ball W. F. Gubbins
Beam strut N. H. Davis
Bearing for vehicles E. & C. Johanson
Beet topping apparatus F. W. H. Shaw
Belt coupling 2 pats. J. M. Greist
Belt or band fastener. Driving H. Tarbuck
Belt stretcher B. O. Kelly
Bicycle locking device E. F. Kaiser
Bin H. W. Watson
Bin indicating device P. Swanson
Blast charger E. H. Norris
Blower. Rotary H. B. Keiper
Boiler tube G. M. Barr
Bolster P. H. Murphy
Bolster. Body T. M. Gallagher
Bolt anchor E. A. Stulz
Bolt anchor C. C. Tomkinson
Book. Check C. C. Chain
Books to covers. Means for securing M. McCannay
Boot and shoe tree W. W. Beals
Boring tool P. Thomas
Bosom press T. S. Wiles
Bottle closure C. E. Duck
Bottle. Non refillable W. L. Braddock
Bottle. Non refillable J. J. McDonald
Bottle. Non refillable W. W. Halligan
Bottle stopper J. A. Arnold
Brake mechanism C. D. Thomas
Brake rigging W. F. Kiesel, Jr
Bread mixer F. Barr
Bread mixer L. Libbman
Breaching C. A. Ackenhansen
Brewing apparatus C. Rach
Brick edging machine F. E. Piper
Briquet making plant J. Treadwell
Brush with tie bolt. Sectional C. A. Fettes
Bucket carrier N. Butler
Buck e. Harness I. E. Bennett
Burette A. M. Soderlund
Calclmimer's color matching device M. N. Longren
Calculating machine G. Knappe
Calendar for pencils or pens S. Francis
Can filling machine G. H. Dunbar
Cans. Forming weakened lines for tearing strips of key opening J. G. Hodgson
Canning apparatus J. S. Baker, Jr
Cap O. D. Shaw
Car and railway carriage platform. Step tread. Tram J. Hndson
Car. Bogie I. A. Timmis
Car draft rigging E. C. Washburn
Car. Dump S. Otis
Car fender G. Allen
Car lift. Automatic G. Holmes
Car. Ore distributing R. S. Moore
Car replacer G. H. Sargent
Car replacer H. J. Welsh
Car vestibule J. P. Sjoberg et al
Carbon and glass cutter J. F. Maloy et al
Carbureter W. Herrick et al
Card. Sign C. W. Rogers
Cartridge shell L. Greenwalt
Cash register and indicator J. H. McCormick et al
Casket handle. Sheet metal G. Nierstheimer
Ceiling W. Herbst
Cement brick and the like. Machine for making F. C. Hohn
Cement brick mold W. A. Shock
Cement roofing tile making machine A. Gaspari
Cereal drying and sterilizing apparatus E. I. Noxon
Chair seat reissue. J. Jackson et al
Chart. Fashion W. Freeman
Cheese cutter. Computing L. Swank
Chimney cowl and ventilator D. Collins
Chimney, globe and shade holder W. C. Homan
Chisel. Molar H. M. Stevenson
Chuck. Automatic B. F. Barnes
Chuck. Rock drill J. C. H. Vaughn
Churn T. A. Davis
Cigar bunching machine J. S. Winget
Clasp or buckle C. E. Smith
Clay cutting machinery. Cutting wire attachment for W. R. Cunningham
Cleaner I. Kraus
Clock. Electric self winding C. F. A. Sturts
Cloth cutting machine N. I. & D. D. Tefft
Clothes rack M. Wheeler
Clothes tree M. Bidwell
Clutch mechanism. Dumb waiter H. Keller
Coat hanger R. H. Knight
Coffee pot L. E. Beers
Collar fastener A. Reed
Collar fastener. Harness N. B. Gould
Columns, arches, floors, bins, &c. Constructions of A. V. Sims
Combination clasp L. Weaver, Jr
Concrete block making machine E. M. Walton
Condenser P. O. Keilholtz
Condenser. Surface L. R. Alberger
Conduit coupling. Electrical A. C. Proudft

Continuous piston engine J. C. Jarvis
Controllers. Time limit device for A. Churchward
Cork. Self measuring E. S. Raymond et al
Corset busk L. B. Baillet
Cotton chopper and checker J. F. Agee
Coupling S. A. Akins
Crane. Hydraulic C. L. Taylor
Crate. Knockdown fruit L. R. Bacon
Cultivator C. C. Kirkland
Cultivator E. B. Winters
Current motor H. D. Penny
Current motor system. Alternating 2 pats. A. G. Davis
Curtain and shade fastening. Combined A. Lloyd
Cut off. Automatic A. D. Purtle et al
Dampening apparatus. Laundry H. M. Forbes
Damper and valve regulator. Automatic C. E. Sanford
Damper regulator. Automatic D. M. Harlacher
Dish washing machine C. S. Chamberlain
Disinfecting device L. Lund
Dispensing device L. B. Hayward
Dissolver W. J. Flittin
Distillation. Process of G. H. Bradford
Door A. Burdick
Door lock and latch J. Hope, Jr
Door lock. Emergency exit H. E. Clark
Door lock. Sliding L. A. Turner
Door lock. Two bolt F. H. Fay
Doors. Pull device for sliding L. A. Turner
Doweling device H. A. Litz
Draft equalizer F. M. Rutten
Drafter equalizer G. W. Wiley
Drawing apparatus. Pantographic C. M. Daly
Drying machine door operating device W. M. Schwartz
Dye and making same. Cyanin E. Konig
Electric conductor L. E. Underwood
Electric light shade or hood A. S. Marten
Electric motor E. R. Esmond
Electric switch F. Huffer
Electric transmitter J. Prince
Electrolytical decomposition. Apparatus for G. E. Cassel
Electropneumatic channeler A. H. Gibson
Elevated carrier I. L. Foster
Elevator safety device M. A. Keeley
End gate O. Anderson
Engines. Means to regulate the power of explosion A. Vogt
Envelope G. N. Renno
Envelops. Fastening for closures of L. G. Swanson
Excavator W. H. Onion
Excavator bucket tooth A. M. Cupples
Excelsior cutting machine W. H. Niemeyer
Eye shield L. L. Zarbaugh
Eyelid. Lacing J. A. Morrison
Fan deflector G. L. Thompson
Fascine H. F. Kellner
Fasteners. Tool for detaching I. Jackson
Feed trough J. W. Alkire et al
Feeder. Boiler H. S. Corbitt
Fence brace. Wire L. Olson
Fence machine. Wire A. G. F. W. & E. A. Hoefel
Fence post W. A. Douglass
Fence post. Portable W. R. Harris
Fence stay R. L. Horsley
Fender J. L. Matthews
Fertilizer distributor J. P. Fullilove
Filing device. Metal R. Meier et al
Filter. Air 2 pats. A. Lieber
Fire screen R. A. Webster et al
Firearm E. H. Searle
Firearm. Recoil operated E. H. Searle
Firearm. Self loading H. Stamm
Firearm support L. J. & W. E. Dubert
Fireproof quartz brick or block E. Stoffer
Fireproof windows. Cross munion for S. Keighley
Fish hook C. M. Greenway et al
Flanging machine C. W. Sleeper
Flue stopper J. L. Clark
Fluid presser A. H. Gibson
Fly trap J. Kress
Folding box I. Wigren
Folding box C. B. Rutledge
Food product C. E. Bright
Fruit harvester M. L. Porter
Furnace W. B. Ruggles
Furnace front J. Bishop
Furrow opener J. W. Cleveland
Furrow opener. Disk E. Christman
Fuse for shells. Percussion H. Wilson
Fuse. Inclosed C. D. Haskins
Fuse. Percussion L. D. Driggs
Fuse. Shell L. L. Driggs
Fuse terminal H. E. Procnier
Game apparatus and advertising novelty J. R. Brown
Garbage incinerator J. G. Branch
Garment M. W. Brooks
Gas burner. Automatic regulating G. W. Lord
Gas economizer and purifier F. G. & L. F. Koehler
Gas from gas generators. Apparatus for preventing the escape of J. Hofmann
Gas furnace. Producer P. Schmidt et al
Gas generator. Acetylene E. Moreau
Gas machine. Acetylene J. F. Philpott
Gas mantles. Machine for treating impregnated fabrics to produce incandescent J. T. Robin
Gas or vapor devices. Starting electric P. C. Hewitt
Gas pressure regulator J. W. Weeks
Gas supply. Means for automatically shutting off F. English
Gaseous fuel burners. Vaporizer for R. J. Miner
Gate C. Harris
Gearing. Variable speed W. E. Blair
Gin feeder. Pneumatic J. W. Seifert
Glass annealing kiln H. K. Hitchcock
Glass articles. Manufacture of H. K. Hitchcock
Glass articles. Producing hollow quartz R. Kuch
Glass blowing machine plunger H. Bard
Glass drawing apparatus I. W. Colburn
Glass drawing apparatus and process I. W. Colburn
Glass drawing process and apparatus I. W. Colburn et al
Glass. Feeding H. K. Hitchcock
Glass feeding mechanism H. K. Hitchcock
Glass. Manufacture of H. K. Hitchcock

Glass free from air bubble. Producing quartz R. Kuch
Glass. Manufacture of sheet H. K. Hitchcock
Glass. Manufacture of wire A. J. Baldwin
Glass press H. K. Hitchcock
Glass. Runway for annealing H. K. Hitchcock
Glass vessels. Protecting quartz R. Kuch
Glass working apparatus I. W. Colburn
Glassware. Machine for making hollow F. W. Pawling et al
Glazed structure 2 pats. R. N. Schalkenbach
Go-carts and the like. Undergear for H. Kitchin
Governor. Speed H. E. Warren
Grain binder machine driving mechanism S. K. Dennis
Grain. Drying and roasting V. Lapp
Grain heater and drier P. Provost
Grater and slicer J. P. Runkel
Gravity lock L. A. Turner
Grinding machine F. Rodzonowski
Grinding machine. Lawn mower blade W. H. Fetters
Grinding plate J. F. Winchell
Gum. Apparatus for straining S. B. Adams
Gun firing apparatus V. C. Tasker
Gun. Semi-automatic W. H. Driggs
Guns, cartridges, and the like. Wad for shot G. Bathgate
Hair roll C. V. D'Ossone
Hame C. A. Adams et al
Hame. Harness I. Larsen
Hammer. Pneumatic J. Murphy
Hammer. Revolving F. F. Hartwig
Hammer. Treadle C. M. Nielsen
Hay carrier D. D. Miller
Hay press C. Cotham
Heating furnace C. P. Turner
Heating surfaces. Machine for F. O. Blake et al
Heel. Cushion W. T. McLaughlin
Hoe. Horse E. A. Harvey
Hoisting mechanism brake E. M. Coyne
Hook T. V. Wallace
Horseshoe E. P. Hagerty
Horseshoe H. W. Seiber
Horseshoe S. D. Kostenbader
Horseshoe J. H. Carey
Hose coupling A. Anderson
Hose support. Garden J. McBoyle
Hydraulic jack W. H. Russell
Ice creeper P. Stayert
Ice helmet C. W. Meinecke et al
Illusory device for advertising or amusement C. T. Bradshaw et al
Implement. Combined W. H. Ames
Insect trap R. Hazlerigg
Insulating bushing J. G. Callan
Insulator and wire clamp J. F. Tanbold
Insulator pin L. Steinberger
Invalid's table C. E. Kemp
Iridium. Producing metallic H. C. Parker
Ironing board and step ladder. Combined B. F. D. Miller
Ironing machine R. C. Hollis
Journal box. Car A. V. Peppard
Juices. Treating vegetable T. von Lewicki
Key opening can J. G. Hodgson
Kindling block reissue. E. Pollard
Label attaching machine G. C. Siem
Lacing A. Schosshusen
Lacquer or varnish. Compound suitable as L. Lederer
Ladder bracket. Swinging R. W. Spencer
Ladder foot clamp B. P. Hogan
Lamp. Electric E. Thomson
Lamp. Electric arc W. R. Ridings
Lamp. Incandescent G. Germani
Lamp. Incandescent electric R. & G. H. Gerow
Lamp or headlight for vehicles E. C. Geissberger
Lamp socket. Incandescent J. J. Hartley
Lantern bracket M. D. Lewis
Leather and rubber bodies. Article of manufacture comprising C. L. Ireson
Leather and rubber. Vulcanizing C. L. Ireson
Link. Detachable W. A. Parrish
Load binder W. E. Kempton
Lock L. Faust et al
Lock tumbler. Combination W. H. Taylor
Locks. Spindle bearing for combination R. C. Lewis
Locks to doors. Means for attaching dial W. H. Taylor
Loom controlling means W. F. Draper et al
Loom. Weft replenishing H. Wyman
Looms. Crack preventing means for A. M. Marcoux
Looms. Crack preventing means for C. F. Roper
Lubricating system C. H. Treat
Lubrication system W. B. Featherstone
Lubricator H. Heck et al
Lumber graining machine H. Silver
Machine support W. L. Rutan
Mail bag catcher R. M. Reay et al
Mail box W. O. Dresser
Mail crane S. B. Forman
Malting drum. Pneumatic F. B. Giesler
Mandel G. W. Gombel
Manhole cover H. Wilhelm
Manure spreader J. H. Haish
Match package J. A. E. Criswell
Matrix making machine 2 pats. A. H. Cruse
Mattress fastening device D. I. Tompkins
Measuring machine. Rope H. P. James
Mechanical movement J. W. Crist
Mechanical movement J. Dietz
Metal leaching T. B. Joseph
Metallurgical process W. E. Everette
Milking machine E. V. Gandil
Mixing and kneading machine C. Laurick
Moistener and sealer. Envelop D. G. Saunders, Jr
Mold R. T. Frost
Molds. Making M. Kuller
Molding apparatus W. F. Kerlin et al
Molding apparatus J. Robin-Langlois
Molding machine C. A. Hagadone
Monkey wrench G. H. Bell
Moth trap J. R. Edgar
Motion. Mechanism for producing reciprocating G. T. Reiss
Motor controlling apparatus. Electric H. E. Dey
Mower cutter bar W. C. Rarig
Music rack for upright keyed instruments F. Muller

Muzzle E. V. Oneal
Nut lock R. Johnson
Nut splitter W. G. Brown
Oar W. H. Smyth et al
Oil burner E. A. Cox
Oil can T. B. Wilkinson
Oil extracting apparatus V. D. Anderson
Oil separator W. O. Williams
Oil tank C. H. Heuzel
Ore concentrator M. R. Lyle
Ore feeder N. V. Fitts
Ores, Concentrating W. M. Sanders
Oven W. M. Fulton
Oven, Gas W. J. Keep et al
Packing case, Sheet metal A. T. Kruse
Padiok H. P. Townsend et al
Paper, Machine for surface finishing C. W. Gay
Paper machinery, Felt cleaner for M. Miller
Pasteurizing apparatus N. F. Nissen
Paving compounds, Machine for manufacturing W. H. Worswick
Peat drying retort C. A. Sahlstrom
Peeling machine, Tomato D. Marshall
Pen, Fountain J. Holland
Pendulum beat adjuster W. M. Johnson
Phonographs, Returning device for S. Farb
Piano action flanges, Attachment for C. L. Kallstrom
Piano player, Pneumatic E. N. Dickerson
Pick, Miner's D. J. Andrews
Pineapples, Machine for treating G. W. Zastrow
Planter attachment, Corn L. Linsey
Planting and fertilizing potatoes, Machine for J. G. Hirsch
Plate lifter 2 pats. O. Goodwin
Pliers, Bending and shaping J. W. Bowker
Plow P. Matthews
Plow, Reversible disk M. Lundin
Plow, Sulky J. S. Zant
Plumb bob C. J. Hedlund
Pneumatic despatch apparatus C. F. Stoddard
Porcelain and similar ware, Apparatus for molding E. G. Kastenhuber
Post anchor T. E. Templeman
Power controlling device H. H. Williams
Power presses, Riveting attachment for H. J. Hinde
Preserving compound G. E. Grenard
Printing machine registering device W. H. Waldron
Printing purposes, Preparing zinc and aluminum plates for E. O. Schmiel
Pulley and the like facing J. T. Sappenfield
Pulp screen, Centrifugal J. W. Parker
Pump J. B. Falioure et al
Pump C. W. McGonigle
Pump, Centrifugal F. W. Krogh
Pump, Hand operated W. H. Jordan
Pump plungers, Driving mechanism for two W. E. Blair
Pumping engine F. W. Davis et al
Punching machine, Automatic C. J. Gadd et al
Radiator B. B. Briscoe
Radiators, Drying rail and foot rest for heat M. A. Sims
Rail, Electric L. Steinberger
Rail guard, Third A. A. Hickerson et al
Rails, Sleet cutter for third E. A. Dunbar et al
Railway block and despatching system R. W. Gallagher et al
Railway rail joint J. W. Walker
Railway rail stay H. H. Sponenberg
Railway switch C. W. Hundley
Railway switch G. H. Colvin
Railway tie W. A. Austin
Railway tie J. L. Catlett
Railways, Staff system for controlling the traffic along single track T. H. Patenall
Regenerative muffle furnace W. R. Miller
Register H. I. Eisen
Ring key E. B. Craft
Riveting device F. Sheppard
Rock drill W. J. Ertle
Rocking chair F. Kohn
Rolling axles and the like, Apparatus for G. E. Walker et al
Rotary engine 3 pats. N. R. Smith
Rotary kiln J. H. Logan et al
Rubber and leather, Attachment of C. L. Ireson
Rubber to leather, Attaching C. L. Ireson
Rule and level, Combined folding plumb H. Dicks
Saddletree, Gig J. McGuire
Safety pin H. R. Sargent
Sand blast E. P. Reichhelm
Sanding and polishing machine E. Tyden
Sash lock F. O. Andrews
Saw and scriber, Combined hand H. C. Malick
Scale, Combined spring and lever C. H. Hapgood
Scale, Computing S. J. Austin
Scale, Spring balance W. H. Sanderson
Scale, Weighing A. W. Barnard
Scraper, Soot A. H. Blackburn
Scraper, Wheeled J. M. Brooks
Screen striker or agitator J. R. Johnson et al
Screen valve, Self cleaning air W. T. Sears
Scrolls, Machine for the manufacture of M. Pembroke
Seal, Bottle J. Wermitz
Seal for boxes, &c. E. J. Brooks
Seal for boxes, bags, &c. E. J. Brooks
Semaphor signal 2 pats. R. Herman
Shaft coupling R. H. Rice
Sharpening edge tools, Device for J. D. Yow
Shears, Tension device for M. A. Mihills
Sheep hook A. G. Adair
Sheet holder, Loose E. C. Washburn
Sheet metal, Making oxid coated A. Ridd
Sheet separating and feeding mechanism 3 pats. C. E. Sage
Shingle gage and clamp G. Reed
Shoe form J. A. Niles
Shoe polishing machine J. W. Osborne
Shoe tree J. E. Baker
Shoe uppers, Forming and cutting W. Kennigott
Shoestring fastener S. Fisher
Shutter fastener A. B. Landis
Shutter, Rolling J. Cahill
Sign, Illuminated E. Elliott et al
Signal system 2 pats. J. E. Allison
Signaling system P. Winsor
Singeing machine H. D. Oppenheimer

Sled C. R. Forward
Sleighs, Apparatus for portable A. K. Ramsdell
Slicer, Cabbage core R. Zastrow
Sme separator, Ore E. Hedburg
Sme treating apparatus E. Parrish
Sound conveying apparatus R. A. Anthony
Spinning and winding yarn, Machine for simultaneously A. J. & H. A. Fousis
Spinning machine S. Shackleton
Spinning ring polishing apparatus F. H. Thompson
Spinning rings, Polishing F. H. Thompson
Spooling machine C. A. Cowies et al
Square D. B. Lynch
Square, Folding try J. H. Daniels
Stairway rod fastener J. H. Mahen
Stamping machine, Metal J. F. Sporer
Stamping machine W. J. Kennedy
Station indicator or register, Automatic F. B. Potter
Steam and hot water heater E. B. Frost
Steam, Apparatus for utilizing exhaust J. F. A. Studd
Steam generator, Wick J. V. Poplawski
Steam trap S. Bezvoda
Steering wheel J. W. Johnson
Stereograph mounting apparatus C. S. Beach
Store goods lifter J. H. Bentz
Stuffing box gland J. Mayo et al
Suspenders C. A. Murray
Suspenders W. Freeman
Sweater E. H. Brown
Swinging gate C. Siebring
Switching device, Automatic J. A. De Ford
Syringe J. J. Sinn
Syringe, Hypodermic J. W. Nassauer
Table C. A. Mellin et al
Talking machine repeating attachment S. Kershaw
Talking machine sound modifier C. R. King
Tap, Expanding G. H. Burley
Target A. L. Hockett
Telegraphy, System for wireless T. E. Clark
Telephone exchange system M. G. Kellogg
Telephone exchanges, Multiple switchboard for M. G. Kellogg
Telephone signal system A. R. Hoover
Telephone system, Multiple station A. J. Farmer
Telephones, Electric switch or disconnecting device for L. J. Fitchell
Telescopy R. A. Anthony
Tenon forming machine S. R. Bailey
Terret, Harness J. R. Potts
Textile fibre material S. Kohn
Thill coupling C. C. Bradley
Thimble S. H. Huntington
Ticket, Transfer W. C. Pope
Time recorders, Card frame for J. A. Day
Time keeper 2 pats. A. A. Newman
Time keepers, Cabinet and rack for A. A. Newman
Time keepers, Check rack and check for A. A. Neuman
Tire and rim, Vehicle W. C. State
Tire for wheels, Spring R. Stone
Tire, Resilient C. L. Ireson
Tire, Spring T. Ware
Tire, Vehicle A. J. Slade
Tires, Leather wearing tread for resilient C. L. Ireson
Tires, Protective tread for pneumatic J. M. Small
Tool P. G. Tacchi et al
Tool, Pneumatically actuated R. Temple
Tooth, Artificial E. L. Townsend
Towel fastener W. L. Stevens
Toy W. Whitfield
Toy F. J. Ploch
Tracker board H. P. Ball
Transfer apparatus H. H. Porter, Jr
Transportation unit, Marine W. T. Donnelly
Trimming and weeding implement W. C. Flagan
Trolley, Cable J. E. Boyle
Trolley switch, Electric G. H. Negley et al
Trolley wheel T. Broadbent et al
Trolley wheel and mounting therefor F. N. Russell
Trolley wires, Ice remover for M. M. Wood
Tunnel apparatus reissue. J. W. Reno
Type writer carriage C. C. Harting
Type writer ribbon spool actuating device H. B. N. Disbrow
Type writers and the like, Rack for holding M. Kellogg
Type writing machine J. Feibel
Type writing machine escapement mechanism C. N. Fay
Type writing machine paper guide F. N. Wagner
Umbrellas and parasols, Means for holding closed W. Dorr
Unipolar machine J. E. Noeggerath
Universal joint P. L. Hussey
Urinal C. W. Meinecke
Valve P. Allan
Valve, Engineer's H. W. Young
Valve, Float E. P. Clary
Valve, Flush E. A. Marsh
Valve for regenerative furnaces, Reversing J. B. Nau
Valve mechanism for rotary engines, Governor J. F. O'Neil et al
Valve seat refacing device J. D. Mitchell
Vapor apparatus, Leading in conductor for electric P. C. Hewitt
Vapor apparatus, Starting device for mercury P. C. Hewitt
Vault J. W. Freeman
Vehicle front gear G. Haller
Vehicle propelling mechanism J. F. Knowlton
Vehicle running gear W. T. Hanna
Vehicle steering device, Motor J. W. Eisenhuth
Vehicles, Lever mechanism for motor J. W. Packard et al
Vise Bench C. Hanemann
Voltage regulator E. F. W. Alexanderson
Voting machine 2 pats. S. Loe
Voting machine J. P. Paynter
Voting machine party selecting mechanism S. Loe
Wagon box rod J. G. Rieff
Wagon standard W. E. Snodgrass
Wall, Retaining W. H. Ferguson
Warp stop motion mechanism E. Guilbert

Warping and beaming machine J. M. Taylor
Washbench, Combination A. T. Wincos
Watch guard or protector F. E. Mead
Watchcase pendant L. P. Roerig
Water purifying apparatus J. H. McDonald
Weather strip C. C. Bowers
Weaving diagram and making same J. Szczepanik
Weighing and lifting device J. W. Davis
Weighing and price computing machine W. A. Dickmann
Weighing apparatus, Automatic J. L. Peppard
Well screen M. E. Layne
Wheel H. H. Porter, Jr
Window H. C. Smith
Window frame M. Brown
Window screen N. G. Angle
Wire, Barb F. C. Carroll
Wire feeding and measuring device D. H. Hayes
Wood, Apparatus for treating resins E. B. Wood
Wood impregnating apparatus C. B. Lowry et al
Wood, hair, bristles and other material, Cleansing, scouring or removing oil and fat from A. Born
Wrench C. E. Cunniss
Wrench C. Garrison
Wrench R. W. Jackson
Wrench H. J. Conrath
Wrench S. S. Bolsinger et al

DESIGNS.

Automobile body A. R. & F. S. Welch
Bag, Hand M. J. Wolf
Bar fixture W. C. Huss
Basket handle bar O. McCarthy
Basket handle socket plate O. McCarthy
Basket name plate O. McCarthy
Coin actuated machine casing A. A. Caille et al
Fabric, Printed textile E. B. Vandergaw
Fabric, Textile G. George
Kitchen bin H. Kessler
Mat A. J. O'Brien
Nebulizer A. C. Eggers
Plate or dish E. E. Waite
Satchel or bag handle G. H. Buchheimer
Sink E. C. Stover
Tumble H. A. Wehman
Toy aerial flight S. M. Allington
Washstand, 2 pats. J. A. Fraenheim

Issued November 28, 1905.

MECHANICAL PATENTS.

Acid and making same 4 cyclohexanic G. Merling et al
Adding machine A. M. Benedic
Advertising and display apparatus K. Stencil
Advertising matter, Device for displaying H. W. Ewing
Air or gas compressor H. L. Doherty
Air ship D. C. Bassett
Amusement apparatus L. Patterson
Anchor F. E. Forster
Animal trap A. Arnesen
Antirail creeper A. Morrison
Armature for electrical machines W. T. Hensley
Astigmatic cabinet G. E. Holmes
Automobile axle A. R. Remory
Automobile engine suspension F. H. Bogart
Automobiles, Driving axle structure for T. J. Lindsay
Axle straightener J. S. & W. H. Steadham
Baling press E. R. Kerr
Ballot pouch N. Beman
Barge, Steel W. C. Jutte
Barometer A. H. McConnell
Bearing, Antifriction G. W. Campbell
Bearing, Wheelbarrow J. Stanley
Binder clasp, Loose leaf W. F. Heffner
Binder for loose sheets, File G. F. Watt
Bird killing device J. A. Beierschmitt
Block A. B. Tarbox
Boat hook J. Sullivan et al
Boat, Life saving J. A. Marley
Boats, Buoyancy regulating apparatus for submarine L. Y. Spear
Bolt anchor F. D. Ogden
Bolting machine H. C. Robinson
Book J. Ortila
Book ring with locking sleeve L. M. Morden
Books by machinery, Making J. Ortila
Boots and shoes, Holder for the files of M. Brock
Bottle cap feeding machine, Automatic C. O. Kalling
Bottle closure O. Eick
Bottle finishing machine F. O'Neill
Bottle, Non refillable J. Martin
Bottle, Non refillable O. Yates
Bottle, Non refillable C. S. Orr
Bottle, Nursing H. F. Gallagher
Box W. E. Krebs
Box fastener C. W. Beehler
Braiding machine carrier R. Hantusch
Brake beam H. B. Robischung
Brake lever E. L. Smith
Brick tongs W. R. & C. R. Cary
Bricks, tiles, and other articles, Apparatus for producing vitrified R. Baggaley
Bridle bit H. T. Werk
Brooms, brushes, and the like, Means for securing handles to P. Meyer
Brooms, Dust pan attachment for L. B. Despain
Brush, Air O. Liberman
Brush head coupling G. P. Cobb
Brush, Scrubbing J. Wolff
Brush, Tooth E. W. Key
Bucket, Clam shell C. Berhoefer
Buggy bow rest C. D. Logan
Building block mold, Adjustable J. B. Francisco
Burner for lighting and heating purposes J. Moeller
Burial apparatus J. A. Hulwick
Burling or perching machine A. L. Robertshaw
Bushings, Spindle J. J. Hines et al
Butter cutter H. B. Waters
Button shanks, Manufacturing C. R. Faas

Cabinet, Button I. Steinan
Cabinet, Sectional steel P. M. Wedge
Calcimine composition, Preparing H. H. Church
Calcium, Manufacturing O. Ruff et al
Calendar support F. H. Smith
Can and box beading machine B. J. Lindgren
Candy box A. E. Redlich
Canned food, Machine or apparatus for automatically processing or cooking and cooling S. J. Dunkley
Canopy, Netting I. E. Palmer
Car bolster O. S. Pulliam
Car door mechanism C. A. Lindstrom
Car, Dumping B. Gilleran
Car dust guard, Railway W. H. Brown
Car part E. I. Dadds
Car replacer H. K. Gilbert
Car seat F. Kohout
Car, Self dumping P. R. & J. L. Bannon
Car side structure, Steel C. A. Lindstrom
Car vestibule door and trap J. Filion
Car window draft deflector P. H. Neffen
Carbureter A. C. Menges
Carbureter, Hydrocarbon engine, O Gavelek
Card support for dummy hands G. F. Wedderburn
Carding machine lap feeding device C. Schofield et al
Carpenter's tool E. L. McDaniel
Cask head closure C. Wellhofer, Sr
Casting copper plates, Tilting mold for E. W. Lindquist
Cattle guard W. A. Alcorn, Sr et al
Ceiling plate J. Neal
Cement burning kiln G. D. Helmick
Cement or concrete blocks, Machine for making J. Horr
Cement stone machine J. Geers et al
Cement structures, Framework for J. S. & W. M. Thomas
Chains, Machine for making weldless A. G. Strathern
Chair C. Acker
Chair iron B. Bethke
Chair support, Adjustable J. Flindall
Chairs, Adjustable head rest for reclining C. H. Knight
Cheese cutter, Computing P. S. McCroskey
Chip breaker J. E. Garner
Churn T. J. Cheney
Churn H. Householder
Churn W. H. Hull
Clamp C. L. Chapman
Clip R. T. Frost
Cloth holding clamp W. B. Nunnally
Clothes drier T. A. Campbell
Clothes reel C. L. Kraber
Clutch, Friction H. W. Hill
Clutch, Frictional J. Rieppel
Collar supporter F. C. Osmer
Collar supporter, Adjustable W. F. Cady
Coloring matter, Azo E. Fussenecker
Combination lock E. E. Lathrop
Combining machine, Wool H. Colburn
Combustion, Apparatus for promoting 3 pats. W. F. Herrick
Composing machines, Justifying mechanism for A. Greenleaf
Concrete building block E. L. Lorscheider
Concrete construction, Reinforcing device for G. L. Peabody
Concrete pile and making the same F. Suman
Concrete wall forming apparatus C. E. Russell
Concrete wall mold A. F. Reichert
Conduit D. E. Reagan
Conflagrations, Means for preventing the spread of E. Baxter
Controlling apparatus E. S. Clark
Converter, Finishing C. M. Allen
Conveyer flights and the like, Making spiral F. C. Caldwell
Conveyer system, Traveling C. Berghoefer
Copper nickel matte, Refining N. V. Hybinette
Copper ores, Fluxing R. Baggaley
Copper refining furnace R. Baggaley
Copper stamping machine R. Baggaley
Core for rolls C. W. Lyman
Corking apparatus G. T. Liddle
Cotton copper or spacer J. W. Gillette
Cotton picker's sack carrier W. A. Byrd
Couch and invalid chair, Combined, E. Loose
Coupling M. L. Sanderling
Cracker conveyer and distributor C. C. Blank
Craberry separators, Feed attachment for J. A. Hayden
Crank shaft F. C. Osborn
Crate, Folding egg J. Smith
Creasing machine J. Naze
Cultivating implement B. A. Briggs, Jr
Cultivating implement, Rotary F. A. Price
Cultivator W. S. Fray et al
Cultivator, Hand P. P. Marshall
Cultivator, Lister L. E. Waterman
Cultivator, planter and roller F. B. Burdge
Current motor H. G. Brown
Curtain fixture C. Maldaner
Curtain pole ring J. Kroder
Cuspidor, Railway car H. H. Piper
Cutter head for shaft turning machines C. J. Gylfe
Cutting device C. F. Williams
Dental plates, Manufacture of roof P. J. Malone
Derrick E. A. Sohn
Diamidoformyl diphenylamin and making same O. Sohst
Dispensing vessel P. Pfeifer et al
Display stand G. Way et al
Distillation, Apparatus for obtaining the products of resinous woods by dry J. Friis
Door check G. J. Blum
Door lock I. G. Baisch
Dredger attachment H. P. Francis
Dredging apparatus F. A. Jones
Drill J. P. Coleman
Drill and drill frame, Combination P. Broadbooks
Dust guard E. Denegre
Dye and making same, Monoazo T Krober
Dye and making same, Naphthalene R. Bohn
Electric circuit automatic regulator M. Waddell
Electric current generator W. Kalsing
Electric cut out W. P. Wright
Electric drill S. D. Stopcheff
Electric furnace J. S. Dorian

- Electric generator controlling device... M. von Hoor et al
Electrostatic separation... P. H. Wynne
Elevator car brake apparatus... V. Regina
Embossing and printing machine... P. V. Avril
Energy. Means for storing and applying... S. L. G. Knox
Engine lubricator. Locomotive... W. M. Smith
Engine muffler. Internal combustion... F. J. Gowing
Engines and winding spools. Combined mount and derrick for... H. A. Hettinger
Engines. Pump attachment for internal combustion... R. A. Mitchell et al
Engraving machine... 2 pats... P. V. Avril
Exercising machine. Electrical muscular... R. O. Hammond
Extension table... M. A. Hanson
Eyeglasses... W. H. Spangler
Fastening device... A. E. Vance
Feed trough... J. B. Straight
Felt waterproof construction... F. N. Pease
Fence post and wire fastener. Combined... A. E. Engesetter
Fence post. Metal... J. H. Gouldstone
Fencing. Anchorage for wire... J. H. Wheelock et al
Fertilizer distributor and cotton seed planter. Combined... J. W. Rudge
Fiber cleaning machine... H. J. Boeken
Figure. Jointed... A. Schoenhut
File. Arch... E. M. Anderson
Filing tray... L. C. Walker
Filling material in crevices. Machine for pouring... T. Fitzgerald, Jr
Filling material. Producing... J. D. Pennock
Finger ring. Leaf turning... A. Ramage
Fire extinguisher system. Automatic... J. G. & J. D. Nolen
Fire hose, life preservers, &c. Device for supporting... T. F. Adams
Firearm... F. P. & W. C. Stannard
Firearm... C. A. Young
Firearm... A. W. Savage
Fishing reel... W. Carter
Flagstaff support... G. Brown
Flexible fabric and making same... J. G. Jackson
Flour bleaching apparatus... P. A. Leperche et al
Flour mills. Dustless feeder and mixer for... R. B. Boll
Flower pot... R. A. Sedlacek
Flux to cylindric bodies. Machine for applying... C. H. Ayars
Fodder fork... J. M. Wolfe
Folding chair... C. Mettler
Folding machine sheet assembling device... E. H. Cottrell
Forge... W. F. Wendt
Funnel for liquid. Filling and closing... J. E. Lundy
Furnace... J. B. Hoover
Furnace... J. S. Walker
Furnace charging apparatus... E. W. Lindquist
Furnace walls. Heat travel controller for... R. Baggaley
Furnaces. Producing chemicals in electric... 2 pats... E. R. Taylor
Furnaces. Rabbling device for ore roasting... C. C. Wilson
Fuses and making same. Composition for... W. T. Unge
Garbage bag... 2 pats... E. J. Deegan et al
Garment fastener... B. Littauer
Garment hook... C. R. Meyer
Gas furnaces. Sight cock for... L. P. Lowe
Gas generator. Acetylene... H. Symonds
Gas lighter. Electric... J. Miada
Gas mantles. Holder or head for incandescent... H. Heldorn
Gas purifier... M. F. McNelly
Gas retort bench... S. B. Russell
Gas washer... B. I. Mullen
Gases. Apparatus for cleansing manufactured... L. P. Lowe
Gasket... J. W. Guillott
Gate... L. C. Sweet
Gear... R. R. Spoor
Gear cutting machine. Spiral... T. Fawcus
Gear. Friction drive speed... W. E. Trufant
Gear. Transmission... A. C. Menges
Gearing. Differential... R. Symmonds
Germicidal cake... S. N. Kohn
Glass cylinders. Severing drawn... J. Campbell
Glass finishing apparatus... F. O'Neill
Glass gathering and delivering machine... F. O'Neill
Glass globe or shade. Prismatic... O. A. Mygatt
Glass making apparatus. Wire... G. W. Morenus
Glass plates. Manufacture of... 2 pats... B. C. White
Glass rolling apparatus... A. Meyer
Glass rolling machine... B. C. White
Glass tile, slab or the like... C. H. Thompson
Glassware, &c., for finishing. Snap for holding... F. C. Albrecht
Glazing support... J. Peiz
Glove or mitt. Catcher's... E. J. Goldsmith
Governor. Marine engine... R. J. W. Grasset
Grain. Apparatus for purifying, conditioning and drying... H. J. Caldwell et al
Grain scourer... W. C. Brenner
Grinding and abrading wheel. Portable... A. F. Iankoski
Grinding mill... H. C. Robinson
Grip mechanism... W. Hewitt
Gun sight... 2 pats... J. Y. Russell et al
Hame attachment... I. A. Miller
Hammock... E. A. Palmer
Hammock and hammock support... I. E. Palmer
Harness loop... C. A. Messenger
Harrow section. Adjustable... D. H. Brown
Harvester. Corn... F. T. Tarbox
Hat and cap... M. Redgrave
Hat making machine... M. A. Cumming
Hay, &c. Machine for gathering... G. M. Depew
Hay raking and stacking machine... E. J. & J. M. Foster
Heat engine... F. E. Junge
Heat radiation. Device for effecting... S. W. Zent
Heater... D. Lewis
Heels, &c. Machine for finishing... C. B. Tuttle
Hinge... G. E. Anderson
Hog scalding and scraping machine... P. F. Scidel
Horse blanket... A. H. Meyers
Horse checking appliance... A. A. James
Horse detacher... H. H. Reed
Horsehoe calk... C. E. Anderson et al
Hose coupling... J. F. McElroy
Hub for spoked wheels. Expandable... H. W. Wurth
Hydrocarbon burner... W. H. Thayer
Hydrocarbon burners and furnaces. Hot air appliance for... A. H. Saffell
Ice. Apparatus for freezing plate... H. Stout
Identification device... C. R. Williams
Illuminating device... A. Richter
Incandescent mantles. Machine for manufacturing... I. L. Muller et al
Incubator... R. A. Boyer et al
Incubator... H. E. Keller
Incubator... E. Ochser
Indicator... F. P. Thomas
Ingots. Perfecting cast steel... 2 pats... R. W. Hunt
Injector burner... L. K. Leahy
Inkstand... F. M. Ashley
Insulator. Electric strain... S. L. Foster
Internal combustion engine... J. D. Blaisdell
Iron hardening compound... C. A. Burns et al
Iron. Producing... R. Baggaley
Jar... E. Houghton
Jeweler's case... W. Kahle
Jointer gage... R. Carson
Journal box... J. G. Pontious
Journal box lid... J. S. Patten
Junction box... E. T. Greenfield
Kettledrum... D. M. Wright
Knitting machine... J. E. Rowe
Knitting machine. Circular... F. B. Wildman
Knockdown or collapsible box... W. E. Brown
Labeling machine... J. B. Aufeldish
Lace fastener... J. B. Hall
Lacing loop... G. W. Prentice
Lacing tip forming die... A. T. Parker
Ladder. Step... A. Daugherty
Lamp... W. S. Hamm et al
Lamp. Acetylene gas generator... W. O. Nelson
Lamp Desk... F. E. Kinsman
Lamp Gas... T. Craig et al
Lamp heater... H. T. Hvatt
Lamp. Regenerative gas... W. S. McLewee
Lanterns. Wick raising attachment for... W. S. Hamm
Lasts. Manufacturing boot and shoe... A. Lorant
Latch... W. O. Boykin
Latch. Cylinder night... J. Roche
Latch. Gate... J. H. Snyder
Lathe center. Turning... C. I. Dalley
Lathe. Wood turning... F. R. Inman
Laundry indicator... J. F. Palmer
Lens. Bifocal... L. B. Bell
Lens mounting... F. A. Hardy
Ligatures, &c. Container for... F. Evans
Lightning arrester... A. J. Berry
Linotype machine... D. Petri-Palmedo
Lipote machine... P. T. Dodge
Liquid agitator... A. Good
Lixivation. Apparatus for... A. W. Constans
Loading machines upon trucks. Device for... A. Holden
Lock... F. J. Vieweg
Locomotive... H. Reid et al
Loom... C. Renger
Loom. Filling replenishing... A. E. Stafford
Loom pattern mechanism... E. H. Ryon
Loom shuttle. Self threading... H. A. Kennedy
Mail box... Z. D. Tallman
Malt decoctions. Producing tasteless roasted... M. Weyermann
Mannre carrier... D. B. Cherry
Masonry. Waterproofed... F. N. Pease
Matte. Converting... 2 pats... R. Baggaley et al
Medicinal injector... N. J. Goldfarb
Metals. Separation of... N. V. Hybinette
Metallic articles. Covering... E. Kempshall
Metallic box... W. R. Dodd
Metallic mat... G. C. Sleeth
Metronome... L. Aurnhammer
Micrometer... F. G. Marbach
Mining machine... J. Swanson
Mining machine... W. H. Sexton
Moistener. Finger... J. M. Keep
Mold... W. H. Lucas
Mold... E. A. Cimmery et al
Motor starting resistance. Automatic... R. Scott
Mower. Lawn... J. N. Bryant
Muffler. Exhaust... F. S. Williams
Mushrooms. Cultivation of... R. D. Kline
Music leaf turner. Sheet... C. E. Shuler
Music rack... A. Krauth
Muzzle... F. M. Rowland
Nail clipper or wire cutter... H. Wilcox
Needle clamp... J. Grubb
Nut device. Axle... L. J. Robichaux
Nut. Lock... C. G. Wrisberg
Nutlock... H. L. Jinks
Oil burner... C. A. Peterson
Oil can. Hand... G. H. Thomas
Oil to axle bearings. Material for applying... W. E. Laycock
Ordnance... J. H. Brown
Ordnance. Telescopic rammer for... A. A. Thresher
Ore separator... L. J. Vandervoort
Ore separator. Magnetic... H. F. Campbell
Ore separator. Magnetic... E. Hedburg
Ores and the like. Treatment of... J. Nicholas
Ores, &c. Apparatus for dissolving and separating values contained in... C. H. Rider
Packing... R. H. Rice
Paint. Treating... M. E. McMaster
Panel board... H. Krantz
Paper machine press rollers. Polishing and grinding mechanism for... B. Schnitzer
Paper yarn. Improving... M. Holken
Pen. Fountain... J. Blair
Pencil box for slates... J. Koegel
Pencil sharpener... F. H. Smith
Phonograph attachment... G. Feist et al
Phonograph reproducing sound box or horn... R. Head
Piano action for pianos... E. Werner
Piano. Automatic... F. Schaub
Piano pliers... C. H. Lang
Piling. Metal sheet... W. G. Fargo
Pipe bender... S. M. Green et al
Pipe cleaning device... J. E. Filcroft
Pipe collar... M. C. Rosenfeld
Pipe tongs... H. R. Hill
Planer knife... F. L. Conforth
Planers. Matcher head for wood... C. W. H. Blood
Planter. Corn... E. H. Snyder
Planter. Corn... W. H. Wertz et al
Planter. Potato... T. L. Good et al
Plaster. Adhesive... H. G. Weber
Plastic material. Machine for pressing... E. W. Rider
Plow attachment... I. Jefferson
Plow. Wheeled... C. S. Ruef
Plug. Ignition... C. F. Splittorf
Poison distributor for plants... N. W. P. S. & L. Ward
Power appliance... W. E. Shaver
Power transmission. Speed regulator... C. Pfanschmidt
Power transmitting apparatus... C. R. Radcliffe
Printer's cabinet... H. Dorsey
Printing machine. Stencil... D. Gestetner
Printing press web manipulating mechanism... H. F. Bechman
Processing or cooking or cooling machine. Automatic... S. J. Dunkley
Projectile... E. M. Johnson
Projectiles. Manufacture of caps for armor piercing... R. A. Hadfield
Propeller... F. W. McCain
Pulley... G. A. Gilbert
Pump... W. H. Shafer
Pump. Air... T. N. Case
Pump. Hydraulic air... G. J. Keenan
Pump Oil... J. B. Davis
Pump operating mechanism... A. E. Kenner
Pump. Rotary... L. von Hofe
Punch. Expanding... W. J. Marshall
Radiator... G. I. Rockwood
Rail... H. Herden et al
Rail and rail joint connection. Track... C. W. Clark
Rail brake... B. V. Gilmore
Railclamp. Guard... J. R. Rutter
Rail joint... H. Driebeaus
Rail joint... J. F. Alexander
Rail joint... G. W. Thurman
Railway block system... A. N. Ireland et al
Railway rail joint... J. T. Evans
Railway signal... C. M. McGehee
Railway signal circuit... E. W. Vogel
Railway switch... L. L. Bigelow
Railways. Apparatus for laying and taking up... G. I. Ritchie
Rammer motor. Telescopic... A. A. Thresher
Range finder... F. Rump
Razor handle... G. W. Korn
Reaction engine... 3 pats... T. R. Almond
Reamer... A. J. Smart
Receptacle closure... J. H. Van Kleeck
Reclining chair... W. K. Rice
Recording or registering the maximum movement of any mechanism. Mechanism for... L. B. Atkinson
Rein holder... E. G. Stevens
Rein support... J. M. Bethel et al
Relay or sounder. Electromagnetic... T. M. St. John
Rock drill... G. W. Smith
Roller attachment... H. F. Moser
Rolling chair... H. F. Weisgerber
Rotary engine... F. A. Headson
Rotary engine... C. O. Sylvester
Rotary engine... B. A. Carmody
Rotary engine... E. H. Holden
Rubber articles having interior cavities. Vulcanizing hard... H. O. Traun
Rubber. Dissolving and recovering... G. A. L. Clift
Rug fastener... J. R. White, Jr
Safety attaching device... H. C. Henze
Sash fastener... A. W. Dunn
Sash fastener. Window... C. H. Williams
Sash holder and locking device combined. Window... C. H. Williams
Saw. Butcher's computing... G. Wettich et al
Scale. Grocer's computing... H. J. Silva et al
Scale indicator. Weighing... I. Barry et al
Seal... E. I. Brooks
Self closing seat and chair... T. S. James
Sewing machine thread controlling mechanism... D. Mills
Shade and curtain pole roller. Window... F. Shoo
Shade bracket... H. Kirchhofer
Shaft castings. Attachment for flexible... A. U. Patchen
Sheet metal. Draw press for... I. L. Kelly
Ship loading and unloading apparatus... F. R. Clark
Ships' cabins. Balanced floor for... R. P. Dewey
Shoe upper fastener... C. K. Sharrod
Show case. Knockdown... R. Mancha
Sickle holder... I. Walter
Sidewalk lights, &c. Tread piece for... E. R. Taylor
Sign... E. L. Crehen et al
Sign support... E. L. Bell
Signal... P. A. Gordon
Signaling and electropneumatic train control system. Electric... J. A. Whyte
Signaling mechanism. Electrical... D. H. Coker
Signaling system. Electric... W. S. & A. S. Aungst
Sik. Bleaching artificial... C. A. Ernst
Skate brake. Roller... G. M. Reals
Skates. Ankle support for... R. N. Riblet
Skirt supporter and waist and belt retainer... D. Morrow
Sled... O. A. Essig
Smelting and converting ores... R. Baggaley
Snap hook... R. W. Hubbard
Snow moving machine... O. Sullivan
Sound producer. Composite... F. Walker
Sound recording and reproducing machines. Sound box for... I. Jetter
Sparkling device... B. G. Githough
Sparring machine... I. Hayes
Speed indicator... H. Andrews
Spoke lock... F. S. Waterman
Spindle driving mechanism. Drill... R. G. Henry et al
Spinning frame... H. Snerce
Spinning frame tread guide... J. E. Tvetler et al
Spinning machine... G. J. Cuzner
Spinning machine... D. O. Pease
Spring bottom... G. C. Locklin
Spring wheel... W. H. Jackson
Square. Folding... T. Jarvis
Stacker. Pneumatic... O. Paterbaugh
Staging clamp... U. Facette
Stalk cutter... J. J. Dorman
Stamp affixer... L. R. Hampton
Stamp affixing device... L. E. Smith
Standard. Adjustable... E. S. Bryant
Steam generator. Instantaneous... F. P. Hummel
Steel. Manufacture of... 2 pats... H. W. Lash
Stenciling device... A. E. Williams
Stocking drying apparatus... C. W. Schwartz, Jr
Stone mold. Artificial... J. M. Hutchinson
Stool back. Adjustable... C. C. Augustine
Stores. Package delivering apparatus for... E. Roberts
Stove. Gas... H. J. Bresson
Stovepipe elbows. Making corrugated... A. G. Scherer
Stovepipe fastener... F. P. Richards
Stovepipe thimble connection... J. W. Mahaffy
Sulfur. Recovering... R. Baggaley
Supporter loop... I. B. Kleinert
Swimming appliance... A. M. Bullock
Swimming appliance... W. P. Samms
Swimming device... A. M. Bullock
Swivel, ring and lap ring. Combined... J. C. Hackett
Table lock. Extension... J. L. Arnold
Tablet. Continuous writing... P. M. Wise
Talking machine attachment... I. H. Lutz
Telegraph key. Rear end contact... S. B. Lesley
Telegraphy. Receiver for wireless... H. S. Blackmore
Telephone exchange system... H. T. Cedergren
Telltale... R. H. Cobb
Tile. Roofing... L. G. Satterlee
Tire. Non puncturable... L. A. Davison et al
Tire shrinking machine. Cold... S. N. House
Tire. Vehicle... L. E. Allen et al
Tires. Device for relieving pressure on motor vehicles... J. C. Wands
Tires. Means for inflating rubber... A. G. Lavertine et al
Tires of motor vehicles. Jack for relieving pressure on pneumatic... J. C. Wands
Tires to rims of wheels. Means for securing pneumatic... S. Smith
Tobacco bag nozzle... M. Granat
Tobacco package. Chewing... A. Marschner
Tomato scalders... W. L. Clark et al
Tool. Pneumatic... J. F. Clement
Tool. Pocket... J. T. Rosenheimer
Tooth fastening for bridgework. Artificial... T. H. Whiteside
Torpedoes, &c. Igniting mechanism for air... W. T. Unge
Toy. Musical... D. Howe
Toy pistol... F. Campbell
Trace attaching member... A. K. Baltezer
Track bracket... G. A. Swineford
Track laying machine... N. Bennett
Track laying machine... F. W. McCabe et al
Traveling bag. Telescopic... A. B. Sprague
Trolley base... H. R. Lockhart
Trolley wheel... A. H. Mathesius
Truck. Car... J. Taylor
Truck frame and pedestal. Car... R. C. Wright et al
Tubing. Flexible... L. Sussman et al
Turbine. Elastic fluid... 2 pats... W. S. Elliott
Turbine. Steam... E. S. Bryant et al
Twisting apparatus. Yarn... A. E. Rhoades
Twyer plate for Bessemer converters... L. N. McDonald et al
Type casting and setting machine... I. R. & G. A. Pearson
Typewriter ribbon spool... H. M. Colvin
Typewriter type cleaner... S. C. Callaway
Typewriter machine... F. W. Hillard
Umbrella... W. G. Hoffman
Umbrella handle... M. J. Ades
Umbrella lock... F. A. Wilson
Vaginal irrigator... M. Vidaver
Valve... F. L. Smith
Valve... H. H. Ginaca
Valve. Automatic safety check... T. L. Stewart
Valve gear mechanism... F. Lamplough
Valve. Reversing... O. Hove
Valve rod and wrist-pin connection... A. Skofsrud
Valve Rotary... R. L. Donaldson
Vaseline. Preparation of water soluble... F. Boleg
Vehicle body... H. H. Rice
Vehicle. Motor... W. D. Lowe
Vehicle wheel... E. Cantono
Vehicle wheel... G. Schram
Vehicle wheel... G. L. Glaser et al
Vehicles. Apparatus for settling dust raised by motor... S. S. Stitt
Vessel. Collapsible... W. M. Fulton
Vessels. Means for stopping the motion of... E. P. A. Villette
Vise... T. Hadden
Visible and audible signal... J. L. Creveling
Washing machine... L. D. Thornburgh
Watering apparatus. Stock... W. M. Anderson
Well plunger. Tubular... E. R. Lockwood
Wells. Electric heater for oil... J. E. Williamson et al
Wheel... R. A. Rover
Wheel rim. Vehicle... E. Weiler
Whiffletree coupling... A. J. Burger
Whip attachment for horse-powers... T. J. Leigh
Whistle... W. A. Pardoc
Winder... C. N. Childs
Windlass. Tree-felling... H. Rutner
Window... O. A. Bingham
Window... B. J. Leslie
Window frame and sash. Metallic... S. F. Hicks
Window frames, doorways, &c. Fixture for... A. H. Hauk
Window screen... M. Solmsion
Window screen... C. W. Mattern
Wire. Barbed... C. O. Neubauer
Wire cutting mechanism... N. S. Harter
Wire rope clamp... C. B. Billman
Wire splicer and tightener... J. G. Regenier et al
Wire stretcher... J. Lambert
Wire stretcher, splicer, and tightener. Combined... W. D. Miller
Wood. Machine for graining and otherwise ornamenting... H. C. Johnson
Wooden and other surfaces. Compound for finishing... F. Huerbein
Wrench... F. C. Warren et al
Wrench... J. P. A. Haulon
Wrench... A. L. Crittenden
Wrench... J. W. Butler
Wrench and pipe cutter... F. Minck
X-ray tube... J. O. Heinze, Jr
Yarn, &c. Apparatus for testing and registering the degree of inequality of... E. Herzog
DESIGNS.
Can top. Sheet metal... H. O. Hyatt
Fabric. Textile... 2 pats... A. Guelle

A Great Half-Price Offer

Read every word of this announcement, for it is the opportunity of years. The four greatest magazines in this country have combined to be offered together at a greatly reduced rate. Never before was such an offer given to the public, and it is safe to say never will it be made again. This year several magazines have increased in their subscription price, which shows how much greater this offer really is. The only reason we are making it to the people of this vicinity is because we find we have not as many subscribers as we desire in this particular locality. But only a limited number will be sold at this price, therefore we advise everyone to accept this offer without delay. When we have received a certain number, we shall withdraw the offer.

PUBLISHERS				PRICES		
Cosmopolitan,	=	=	=	=	one year	= \$1.00
Woman's Home Companion,			=		" "	= 1.00
The Review of Reviews,		=	=		" "	= 3.00
The Inventive Age,	-	-	-	-	" "	- 1.00
						<u>\$6.00</u>

ALL FOR \$3, JUST ONE-HALF THE PRICE!

THE COSMOPOLITAN

which was recently purchased by Mr. W. R. Hearst, has been greatly improved by the new management and is now the most popular ten-cent illustrated monthly in the world. Already its sales have increased 100,000 over what they were four months ago, when it became a part of the famous Hearst publishing organization. An edition of 500,000 copies a month is now in sight, and the publishers are sparing no effort to secure for it all that is most desirable in the way of pictures, stories and articles. As an example, pictures and stories by Frederic Remington and stories by W. W. Jacobs are now running in the Cosmopolitan and a strong new serial by H. G. Wells is announced for immediate publication.

The Review of Reviews

Substantial American men and women are going to keep up with the times and they are going to take the shortest cut—which is "The Review of Reviews"—a monthly survey of the world's progress.

Woman's Home Companion

is not excelled by any other home and family publication in the world. Stories, fashions, articles, and illustrations.

GRAB THIS OPPORTUNITY

If you do not want but one of the magazines above with our paper for a year, you cannot do better than to accept this offer while it is hot right off the bat and before it is withdrawn.

Cosmopolitan, one year	-	-	-	-	-	=	\$1.00
The Inventive Age, one year				=	-	=	1.00

BOTH FOR ONLY \$1.50

CUT OFF ON THIS LINE	
Fill out Coupon—mail it to-day with your remittance—and be sure of getting the greatest magazine combination that was ever offered—an opportunity of years and one it is safe to say will never be made again.	THE INVENTIVE AGE
	Date.....

	Enclosed please find \$.....for which enter my name for one year's subscription to your paper and the following magazines.....

	Name.....
	Address.....

Address: THE INVENTIVE AGE PUBL'G CO., 918 F St., Washington, D. C.

